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CONTENTS

<i>Microfilm in Business and Industry</i> , George A. Schwegmann, Jr.	147
<i>Recordak</i> , John K. Boeing	153
<i>Problems in Mass Reproduction of Material in Foreign Collections</i> , Ralph H. Carruthers	169
<i>The International Federation for Documentation</i> , F. Donker Duyvis	176
<i>Source Materials for the Study of American Culture</i> , Eugene B. Power	192
<i>One Bottleneck Less</i> , M. Llewellyn Raney	198
<i>Latin-American Microfilming Project at Brown University</i> , James H. Case, Jr.	200
<i>Chemical Preservation of Squeezes</i> , Earl R. Caley and Benjamin D. Meritt	204
NEWS and TECHNICAL NOTES	206
FOREIGN SECTION, <i>Recent Photo-Material for Documentation</i> , Dr. W. Rath; tr. by I. O. Garodnick	216
BOOK REVIEWS and NOTICES	220
PATENT SECTION	222
EDITOR'S CORNER, <i>Radio Facsimile in Documentary Reproduction</i>	224

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A QUARTERLY REVIEW OF THE APPLICATION
OF PHOTOGRAPHY AND ALLIED TECHNIQUES
TO LIBRARY, MUSEUM AND ARCHIVAL SERVICE

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Microfilm in Business and Industry*

GEORGE A. SCHWEGMANN, JR.

THE USE of microfilm to solve problems of reproduction, preservation and storage of library materials has become so universal during recent years that many librarians have assumed that the technique of microphotography was developed exclusively for library purposes.

Microfilming does figure largely in the modern concept of library economy. It enables libraries to condense entire sections of bulky and frequently used materials to the cubical content of a few small filing cabinets, thereby providing valuable space for current accessions without necessitating the extension of library buildings. Through microfilm, the principle of interlibrary loan has been amplified so that any library may usually obtain from another, reproductions of its resources including the rarest of books and manuscripts at relatively trifling expense. With these considerations uppermost in mind, the average librarian will probably be surprised to learn that the volume of library microphotography is relatively slight as compared with that involved in business and industrial operations.

It has been estimated that fifteen billion commercial microfilm exposures have been made since 1928 by United States government departments, banks, life insurance companies, department stores, factories, etc. In many instances, microfilm was made primarily to preserve luminous records in a minimum of space, since filing equipment, reference costs and floor space can often be reduced to approximately one-hundredth of the former costs. In other applications, microfilming became an integral part of actual bookkeeping and accounting procedures. In any case, the chief reason for the use of microfilm is the inevitable saving in dollars and cents.

*Paper read before the Business and Technology Section, A.L.A. Conference, Cincinnati, May 1940.

Before summarizing some of the important uses of commercial microfilm, it may be desirable to describe briefly some of the equipment employed in this field, since it is far different from that used by most librarians and scholars. Commercial microfilms are almost invariably made from loose-leaf material on 16mm. film by high-speed, automatic, rotary cameras, capable of copying up to an estimated 25,000 records per day. On the other hand, the bulk of library microfilms are currently produced at relatively low speeds on 35mm. cameras of all types and designs which employ flat-bed copyholders.

Although several manufacturers, notably the Recordak Corporation, Remington-Rand and Pathé Film Corporation, have designed commercial cameras, the rotary type of apparatus was originally produced by the Recordak Corporation. Practically all commercial microfilming is done today on Recordak equipment, leased on a monthly or yearly basis.

Preparatory to exploring some of the novel uses of microfilm in business and industry, it may be interesting to examine several applications of commercial equipment in the library field.

A Recordak Jr. camera has been installed experimentally in the Gary Public Library to reduce the cost of charging books.

Briefly, the idea is to place the date-due card, the book card and the borrower's card before the camera for simultaneous exposure on 16mm. film. Each 100 feet of film will record 7,010 charges at a cost of \$2.75. When the book is returned, the date-due card is removed and the volume returned immediately to the shelf. Microphotography likewise will reduce the cost of issuing overdue notices from 35 cents to an estimated 2 cents. A full report on this system will be published in an early issue of the *A.L.A. Bulletin*.

Another example of the use of microfilming in a library's business administration is provided by the Registrar's Office at Temple University. There, the attendance records and individual grades for each student registered in the University from 1930 to 1935, comprising 308,000 cards occupying 4,888 linear inches have been microfilmed on 31 reels, each containing 100 feet of 16mm. film. The total cost of filming was \$231.50, a sum less than the value of the file cases previously used. The original cards were destroyed, thereby making available this drawer space for more urgent needs.

One of the earliest uses of microfilming in business accounting procedures was in conjunction with banking operations. For example, transit work has been greatly simplified in that the banking houses can now send film pictures of checks to their respective Federal Reserve banks for clearing. Formerly it was necessary to describe the checks themselves at length, and, of course, the manual listing often contained errors. Banks also use high-speed Commercial units for microfilming customers' monthly statements, a practice incidentally followed by Department stores. The former ledger records have therefore been eliminated with great savings in time for posting operations and with corresponding reductions in floor space and filing equipment. Microfilming affords complete protection not only to banks using the equipment, but also to their customers. Microfilming every check passing through a bank provides a complete facsimile record. Formerly the only records of these transactions were clerical entries on the books of the particular banks involved. Since the checks after clearance are returned to the maker, the bank previously had only its clerical records to substantiate the transaction.

A private secretary, working in New York City, adopted the habit of forging checks under her employer's name when on trips to another city, where she presented the proper credentials, cashed the checks and pocketed the money. The New York bank which carried her employer's account sent representatives to the corresponding bank. They discovered that the bank cashing the checks employed microphotography and were able to secure facsimiles of the forged signatures. The matter was cleared up immediately since there was *prima facie* evidence of the forgeries.

In another instance a friend borrowed \$5,000 from an elderly woman who died shortly afterward. When her estate was being settled, the borrower presented a cancelled check for \$200 which had been cashed by the deceased. Written across the face of the check were words to the effect that this \$200 was the last payment on the \$5,000 account. This statement was questioned by the executor, and examiners were sent to the payee bank where they found a microphotograph of the item. The writing across the face of the check, stating that the \$5,000 loan was paid in full, did not appear on the check at the time of photographing; hence

the fraud was detected. The borrower, incidentally, is now serving a long prison sentence.

Many industrial organizations use microfilming equipment in their active accounting procedures. An excellent example is found in the system developed by a large oil company. Service stations in the various territories fill out charge slips for customer purchases. A second copy of this slip is a tabulating card or invoice. A portion of the invoice contains the carbon copy of the name, address, items purchased, station number, and similar information, written in longhand. The balance of the invoice is the punch card section. The customer receives the original sales slip for his receipt and the service station sends the duplicate or purchase card invoice to its district office weekly. Here the card is punched. At the end of the month the cards are sorted by customers' account numbers, after which they are put through billing machines, which automatically write monthly skeleton statements for each customer. The punch card invoices are microfilmed in the same order that the statements were written, that is, by customers' account numbers, which incidentally are also in alphabetical order. When the invoices have been filmed, the punched section of the cards are cut off and discarded. The remaining part of the invoice, itemizing the customer's purchases and showing the signature, is returned with the monthly statement. Thus, each customer is able to check the statement with the original charge slips received at the service stations and compare these latter slips with duplicate invoices returned at the end of the month. Besides permitting an accurate check on purchases, this system has greatly alleviated the checking problem in every branch bookkeeping department.

Many railroads have eliminated costly delays of freight trains at railroad yards and junction points through the use of microfilm. Formerly the various stations made out waybill forms showing the destinations, weights, and similar shipping information. This waybill record contained the exact information already written on the original shipping ticket by the sender. Sometimes trains would be detained in the yards for hours while a crew of typists would duplicate the shipping ticket information on the waybill form. The transcription, when completed, was sent with the shipment as delivery instructions while

The original shipping ticket was filed in the office as a necessary record. The problem was solved by microfilming the original shipping tickets after a waybill number had been stamped on them. The original shipping tickets are sent with the goods, and the microfilms are retained as the office records. Under the new system a train enters the yard; the tickets are conveyed through pneumatic tubes to the microfilming equipment; a clerk feeds them into the camera at the rate of about sixty per minute, and the operation is completed. Savings in time and accuracy are tremendous.

Department stores illustrate another accounting operation in which microphotography eliminates much detailed transcription. Formerly, sales checks and similar posting media were sent to the billing department where bookkeepers typed the description of all articles purchased and posted the amounts on customers' monthly statements. With high-speed microfilming units, the posting operation has been greatly simplified. The sales checks are microfilmed currently and the originals released to the customer with a skeleton listing of the total amount. The customer may compare the original sales checks with copies received at time of purchase. The department store saves as much as a stated fifty per cent in billing costs, sixty per cent in machine equipment, forty per cent in numbers of customer complaints, and fifty per cent in overhead expenses attributable to customer complaints.

Microfilming equipment has also played an important role in conjunction with the largest accounting procedure in the world, namely, that of the Social Security Board in Baltimore, Maryland. The Federal Old Age Insurance division has microfilmed its entire file of 52,500,000 SS-5 forms, or Social Security application for account number cards. In its original form, the file occupies many thousands of square feet of floor space. The cards were microfilmed on 16mm. film and the entire file is now stored in film form in approximately thirty-five filing cabinets of standard size, occupying about one-hundredth of the space required to house the originals. Incidentally, two film copies were made simultaneously, one file being preserved in The National Archives in Washington. Given a Social Security number, a clerk can exhibit the microfilm of the original on the screen of a film reader in a maximum of sixty seconds.

In a different field, the United States Codification Board was instructed to prepare a compilation of the administrative law comprising the rules and regulations of the departments, independent agencies, and bureaus of the Federal Government. Each agency was requested to furnish three copies of its material. The whole amounted to about 60,000 pages. It was originally planned for the Board to act on one copy and the inevitable alterations, corrections and annotations would be manually transferred to the two remaining copies, of which one would be sent to the Government Printing Office and the other would be used for proofreading. The original would be carefully preserved in The National Archives as the security copy. It was soon found that the transfer of all notations on the original to the two copies would occupy a large force of clerical workers for several months. Even with the most careful proofreading, errors would be inevitable. Neither time nor funds were available and microphotography was drafted into service. The original was filmed and sent to the printer while the microfilm served in a dual capacity as the security copy and, in conjunction with an uncorrected file, for proofreading. The experiment was entirely successful and about half of the fifty-two titles are now in print. Microphotography permitted an estimated saving of four months in time and about \$15,000 in money.

Among other fields in which microfilming has proved expedient may be mentioned the copying of the voluminous N.R.A. and A.A.A. hearings, county records, hospital case records, current income tax returns and tear sheets in advertising agencies. Professional fields have also demonstrated the utility of microfilm in employing it for the preservation of laboratory records, engineering drawings, etc.

Obviously, as in library administration, microphotography is destined to play an increasingly prominent role in solving the problems of publication, preservation and reduction in storage space which confront the custodians of all types of records.

Recordak

— JOHN K. BOEING

ON MAY 1 of this year the Recordak Corporation, subsidiary of Eastman Kodak Company, celebrated its twelfth anniversary. Although several years of research and experimental work preceded, the first field installation of Recordak equipment was made on May 1, 1928. At that time, the Company maintained one sales and service office located in New York City. During the intervening years, sales and service branches, as well as complete film developing laboratories, have been established throughout the United States, in Canada and abroad. Branches and laboratories in the United States are now located at Atlanta, Boston, Chicago, Cleveland, Dallas, Denver, Houston, Jacksonville, Kansas City, Los Angeles, New York, Philadelphia, Pittsburgh, Portland, San Francisco, and Washington, D.C. In Canada, the Company operates as Recordak Limited with offices at Toronto and Montreal, and with service stations and film developing laboratories at other locations. Offices have also been established abroad at Brussels, Dublin, The Hague, Lausanne, London, and Paris.

Microfilming experts with years of Recordak training and experience are available at all offices for customer consultation and advice. Each office has a service organization, thoroughly competent to service all types of Recordak equipment in the field. Automatic film developing machines, which insure high quality and uniform development of all Recordak film have been installed in each branch. In addition, all film is thoroughly inspected after development, as an added customer service.

The development of new types and models of Recordak to meet all of the varied needs of microfilm users has gone forward rapidly since 1928. The original automatic photographing machine was developed during the period from 1922 to 1926 by Mr. George L. McCarthy, then vice-president of a New York bank, and now president of the Recor-

dak Corporation. Mr. McCarthy's original machine was designed particularly for the photographing of bank checks and was named Check-O-Graph. This is the machine which was further perfected and placed on the market under the name Recordak in 1928.

Since that time, nine new models of Recordak photographing machines, and ten new film reading machines have been developed and placed on the market to serve the various microfilming needs. The Commercial Recordak equipment is no longer limited to the photographing of bank checks and other small size documents, but will automatically photograph all ordinary size unbound records. The Micro-File Recordak equipment will photograph both bound and unbound records of all types, from small card records, up to large size newspaper pages and engineering drawings. Recordak film readers have been perfected for conveniently reading both 16mm. and 35mm. microfilms—and for making photographic enlargements of microfilms as required by the individual user.

New types of safety film, developed particularly for microfilming work have been placed on the market. These films are panchromatic thus assuring the recording of various colored documents and copies with excellent clarity. They are also very fine grained, resulting in extremely high resolution and excellent readability of the copy. Tests made by the National Bureau of Standards indicate that these safety films, when properly developed, have a permanency equal to the best grades of rag record papers.

And so today, with 12 years of invaluable experience as a background, on which has been built a countrywide network of direct customer service, the Recordak Corporation presents nine current models of microfilming units and film readers—precision built to meet every microfilming requirement.

Eastman Micro-File Recordak Model C-1. The Micro-File Recordak Model C-1 is a semiautomatic microfilming machine designed for the photographing of all types of bound or unbound material. Although the previous Micro-File Recordak Model A, pioneered this particular field of microphotography with outstanding results, many new features are incorporated in the newer unit.

It is equipped with a bookholder for holding books open with their

pages in the photographic plane. The construction of the bookholder insures that the book pages will lie flat in an open position without concealing the writing at the binding.

When small volumes are being photographed two pages simultaneously, the bookholder is set to remain stationary, and a double-page spread is pictured. However, when large volumes, such as bound newspapers, are photographed, the book cradle is set to oscillate automatically from side to side, shifting consecutive pages of the volume into the field of the lens. The length of travel of the bookholder is adjusted to the size of the book being copied, by a small hand wheel.

The equipment can be set to photograph documents at reduction ratios of from 12 to 30 diameters by merely cranking the camera elevating mechanism up or down the camera column. A reduction scale is plainly visible on the column. An automatic focusing mechanism is built into the column and camera support bracket so that the camera is always in exact focus at any position on the column. The camera support is designed to allow the camera to be rotated through 360 degrees, so the material being copied can be placed in any desired position on the film. This makes for film economy.

Records as large as $37\frac{1}{2}$ inches x $52\frac{1}{2}$ inches in size can be microfilmed with the unit on 35mm. unperforated safety film. When using the oscillating bookholder, books with a page width of up to 18 inches can be photographed one page at a time. An accessory film gate converts the camera for 16mm. film whenever desired.

Like all Recordak microfilming units, the Micro-File Recordak Model C-1 is electrically operated and motor driven. The shutter operation, film advance, and bookholder movement are entirely automatic in operation when an exposure pedal is tripped. Among the other outstanding features of this machine are:

1. *Field indicator lamp:* When the operator depresses the exposure pedal while the photographing lights are "off," a field illuminating lamp within the camera projects a clearly defined lighted area onto the photographic plane which shows the exact area microfilmed at any setting of the camera. This insures the placement of documents in the correct position for photographing, and enables the operator to determine quickly the reduction ratio which must be used.

2. *Minimum film consumption:* Film advancing mechanism is easily adjustable so that only the minimum amount of film is used to photograph documents.

3. *Exposure control:* Equipped with a photoelectric cell so that the correct exposure for all colored records can be determined at a glance, the unit assures perfectly exposed pictures throughout every roll of film.

4. *High speed operation:* The machine can be operated at 20 exposures per minute when using the oscillating bookholder, and at 50 exposures per minute when the bookholder is stationary.

5. *Automatic focus:* The lens is automatically focused on the photographing plane for all reduction ratios (12 through 30 diameters) of the camera. Therefore, no focusing is required on the part of the operator and sharp film pictures are always obtained.

The Micro-File Recordak Model C-1 is placed with users on either a sales or a rental basis. It is also available at Recordak Laboratories for photographing materials on a job basis.

Eastman Micro-File Recordak Model C-2. The Micro-File Recordak Model C-2 is designed particularly for photographing large maps, blueprints, drawing, and tracings. It is identical with the Model C-1 except that it is equipped with a large table base with side clamps which hold the documents in their proper position for photographing, instead of being equipped with the oscillating bookholder.

It is placed with users on either a rental or a sales basis and is available at Recordak Laboratories for photographing materials on a job basis.

Eastman Micro-File Recordak Model D. The Micro-File Recordak Model D is designed for photographing both bound and unbound records. With a photographic field 25 x 36 inches in size at 20 diameters reduction, it is especially well adapted for microfilming various types of library material, county records such as tract and deed record books, medium-sized maps, drawings, blueprints and countless other records.

Similar in construction, although much smaller than the Micro-File Recordaks C-1 and C-2, the Model D incorporates all of the operating advantages listed under these models, including field indicator lamp, minimum film consumption, exposure control, high speed operation and automatic focus. It does not, however, include the more elaborate stand and oscillating bookholder assembly.

The Micro-File Recordak Model D is usually placed on an ordinary table for operation. It normally operates at from 8 to 20 diameters reduction, but the camera assembly can be rotated 180 degrees for photographing documents or books larger than 25 x 36 inches at greater reductions, for these can then be placed on a lower table or on the floor behind the table on which the unit is resting.



FIG. 1.—Eastman Micro-File Recordak Model D

This unit is placed with users on either a rental or a sales basis, and is available at Recordak Laboratories for photographing materials on a job basis.

Recordak Library Film Reader Model C. The Recordak Reader Model C is built to provide newspapers, libraries, and business organizations with precision equipment for reading microfilms. Handsome in appearance, of all metal construction finished in rich walnut grain, it is an attractive modern adjunct to any reading room or office.

The unit is built to operate with either 16mm. or 35mm. perforated or unperforated film. The projection head rotates through 360 degrees, so that the film pictures can be turned to an upright position on the screen regardless of their positions on the film. Heat absorbing glass is used in the condenser system which permits film to remain in the reader for long periods of time without any possibility of blistering



FIG. 2.—Recordak Library Film Reader Model C

or buckling. As the picture is projected on the screen, the film is firmly held in correct focus between optical glass flats which further protect the film from heat. While it is being moved, however, the flats are automatically separated so that the film moves freely, thus eliminating

possibility of damage to its surfaces. Perfection of lens and illuminating system insures the projection of clear, sharp pictures.

The special screen, 18 x 18 inches in size, is a new product of the Research Laboratories of the Eastman Kodak Company. It possesses three characteristics not found in ordinary translucent screens.

1. Elimination of any bright center spot or uneven illumination.
2. Absence of scintillation so that the unit is well adapted for continuous reading.
3. An extremely wide viewing angle so that the pictures may be read with ease by several individuals at a time.

Outstanding among the features of the Recordak Library Film Reader Model C is the ease with which the magnification of the pictures can be changed to any degree from 12 through 23 diameters. The reader merely pulls the screen toward him. Consequently, the type size of any document being read can be enlarged to the size most suitable to the reader. Coupled with the variable magnification feature, is an automatic focusing device which always keeps the pictures in sharp focus on the screen regardless of the magnification being used. The degree of illumination on the screen is also automatically controlled to remain constant even though magnification ratio is changed.

An ingenious scanning device is provided so that at the higher magnifications the reader can bring into the desired position on the screen, the exact portion of the page he desires to read merely by shifting a lever, convenient to his left hand. The film is easily placed on the film reader and a conveniently located cranking wheel advances or reverses the film page by page or at high speed, so that reference to any page, irrespective of its location on the film is simple and efficient. Individual paper enlargements can be made from microfilms in the unit through the use of an accessory paper holder which is also adjustable for various degrees of magnification. "Daylight" loading Recordak Facsimile Paper may be used for this work. The Recordak Library Film Reader Model C is placed with users on a sales basis.

Recordak Library Film Reader Model B. Designed for projecting film pictures of either 16mm. or 35mm. Recordak film, the Library Film Reader Model B is an opaque screen unit that magnifies microfilms approximately 23 times. This high magnification, while desirable

in most instances, is necessary for the reading of certain originals such as newspaper pages, which of necessity must be photographed at comparatively high reduction ratios.

The screen is 13 x 14 $\frac{1}{4}$ inches in size and shows the entire width of 16mm. film, and slightly more than one half the width of 35mm film. By means of a scanning lever, conveniently located at the left



FIG. 3.—Recordak Library Film Reader Model B

side of the film reader, it is a simple matter to bring any portion of the microfilmed page into view of the reader. This unit is sold to users

Commercial Recordak Model B. The Commercial Recordak is an automatic high speed microfilming unit designed to record all types of ordinary size unbound records on 16mm. single perforated Recordak film. To photograph documents, it is only necessary to feed them one at a time into the feeding hopper of the machine. The documents are then automatically photographed and ejected into the receiving hopper in original sequence. Therefore, any clerk can easily operate the machine; no special training or experience is required.

Documents up to 10½ inches in width and of any length can be photographed by the equipment. Papers of varying sizes, even though intermingled in the same file, can be microfilmed without making any adjustment whatsoever to the machine. An automatic film advancing mechanism incorporated in the Recordak, advances only the exact amount of film required to photograph a document of given size. Consequently, even though several sizes of papers are intermingled, only the minimum amount of film is used for each size document, with no possibility of film wastage.

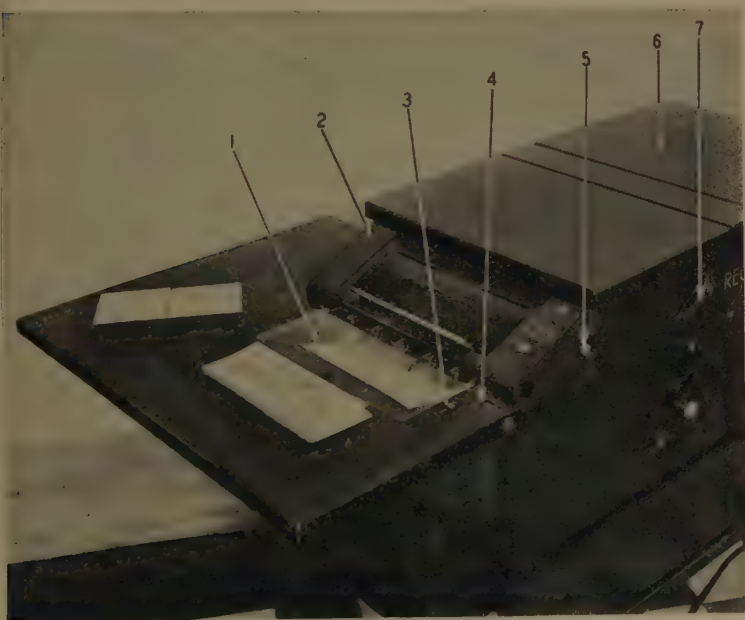


FIG. 4.—Commercial Recordak Model B

A buzzer alarm system is incorporated in the machine which signals the operator when the camera must be reloaded with film, or unloaded, or if the operator has made any error that might otherwise result in the loss of pictures.

Other outstanding features in the unit include:

1. A visible and selective reversal mechanism which enables either one side only, or both the front and back of documents to be microfilmed as

required. When photographing both the front and back of documents, the picture of the back of the document shows immediately following the front on the film.

2. Double document stop mechanism which prevents overlapping and feeding more than one item at a time, thus insuring a picture of every document.

3. Fingertip control button that governs the reversal mechanism.

4. A counter for recording the number of documents microfilmed.

5. Double document stop gauge making possible adjustment of the double document stop mechanism for varying paper thicknesses.

6. Automatic film takeup that eliminates errors, lost pictures and film wastage due to the operator's possible unfamiliarity or carelessness in loading and unloading the camera.

7. Visible indexing dials which automatically record date and indexing symbols throughout the roll of film.

Small size documents such as library cards and checks can easily be microfilmed at speeds up to 100 per minute with the Commercial Recordak. Letters and similar size documents can be Recordaked at from 50 to 60 per minute. Over 7,350 library cards or 2,350 letter size documents can be microfilmed on a 100 foot roll of Recordak Safety Film at 23 diameters reduction, so photographing with the Commercial Recordak is extremely inexpensive. The Commercial Recordak is placed with customers on a rental basis.

Recordak Junior. The Recordak Junior is a combined microfilming unit and film reader developed to meet the needs of organizations with smaller quantities of materials to be microfilmed. It is considerably slower and not as automatic in operation as the Commercial Recordak and is rented to users at a much lower cost.

Documents up to 9½ inches by 14 inches in size are photographed by placing them in the bed of the machine and touching an exposure button. Bound as well as unbound records can be photographed with the machine. As with all Recordak microfilming equipment, only the minimum amount of film is used to photograph a given size document. This is accomplished by changing the position of a spacing bar in the photographing bed of the machine to the exact size of the document being photographed. The position of this bar determines the amount



FIG. 5.—Recordak Junior being operated as a
Photographing Unit



FIG. 6.—Recordak Junior being used as a Film Reader

of film that is used for each exposure. The camera is motor driven and other features such as the automatic film advance, and buzzer alarm system insure accurate and uniform results being obtained by any clerk.

To use the unit as a film reader, it is only necessary to lower the viewing screen, to the viewing position on the bed of the machine and switch on the projection light. The film for reading is placed in the projector head beside the camera at the top of the unit. Photographic enlargements of microfilms can also be made in the Recordak Junior.

Recordak 16mm. Film Readers. Two types of 16mm. Recordak Film Readers are currently available—the Model 6 and the Model 8.

The Model 6 is a compact desk type film reader in which 16mm. microfilm pictures are projected onto a translucent screen. The film



FIG. 7.—Recordak Film Reader Model 6

rolls are quickly placed on the projector spindles at the front of the machine, and the film is rapidly advanced for viewing the pictures, by turning the film advancing crank. Microfilms are enlarged approximately 23 diameters in this reader.

The Model 8 film reader is also a desk type unit, but with this machine, the microfilm pictures are projected onto an opaque screen at the bottom of the reader at 23 diameters enlargement. Documents can be advanced rapidly for quick finding by turning the film advancing



FIG. 8.—Recordak Film Reader Model 8

crank on the right side of the machine or they can be advanced one document at a time by depressing a spacing bar. Enlargements of microfilms can be made in this unit.

Recordak Microfilming Services. The Recordak microfilming equipment described above is available at the various Recordak offices for doing microfilming work for customers on a job basis. Materials sent to these laboratories can be microfilmed on either 16mm. or 35mm. film as the customer desires, and the work is done by microfilming experts of many years training. In addition, positive film prints and paper facsimiles are made for customers at these offices.

A central laboratory is also maintained in Rochester, New York for making reproductions of large quantities of materials on photographic paper. These paper reproductions are known as Recordak facsimiles.

Customers having large files of cards or papers which they wish to have duplicated make advantageous use of this service. The Commercial Recordak, or Micro-File Recordak is installed on the customer's premises for the photographing work. These machines, working at high speed, can photograph large quantities of materials onto film in a short time. The film is developed and inspected at the nearest Recordak developing station and then sent to the central laboratory.



FIG. 9.—Commercial Recordak

Automatic machinery is used at this laboratory for making the paper facsimiles from the microfilms. These can be made to any desired size up to a maximum of $9\frac{3}{4}$ inches in width, and can be made to any length. Recordak facsimiles produced by this method are positive rather than negative reproductions, that is, the copies show black writing on a white background, as do the original documents. As many

uplicates as the customer desires can be made from the film record. Since the automatic machines operate at high speed, the cost for making the facsimiles in large quantities is extremely low.

Recordak Newspaper Service. The Rochester laboratory is also fully equipped to microfilm bound or unbound newspapers on a service basis. The charge for this work is based upon the amount of film used. This service is being used by many newspapers, libraries, and historical societies, more than ten million newspaper pages having already been microfilmed.

Newspapers send their current editions to the Rochester laboratory for microfilming at the end of each month. These editions, which have been slit along the fold are fed page by page into a specially designed Newspaper Recordak, which automatically microfilms them at high speed. The original negative is then inspected and the required number of positive film prints made from it. Approximately 825 newspaper pages are recorded in complete photographic detail on a 100 foot roll of nonperforated 35mm. film.

These microfilm editions of newspapers are being sold to many libraries and historical societies by the newspaper publishers. Thirty-seven film copies of the *New York Times*, six film copies of the *New York Herald Tribune*, eleven of the *Chicago Tribune*, as well as film copies of the current issues of many other newspapers are being sold to subscribers each month.

Bound newspaper files are also being microfilmed at the Rochester laboratory for numerous libraries, historical societies, and newspapers. The Model C Micro-File Recordak is used for microfilming these volumes and the work is done by thoroughly trained experts of long experience.

Customers using the Recordak Newspaper Service usually have the master microfilm negatives of their work stored in the film vaults of the Eastman Kodak Company. Doing this not only assures the customer of the best protection for the negative copies, but also makes them quickly available for the making of additional positive copies when these are desired, without the possibility of loss in transporting the negatives from place to place.

Bound newspaper volumes and other materials are also micro-

filmed on the customer's premises by the Recordak Corporation. The Micro-File Recordak, Model C or Model D is used for this work and the work is done by microfilming experts in the employ of the Recordak Corporation.

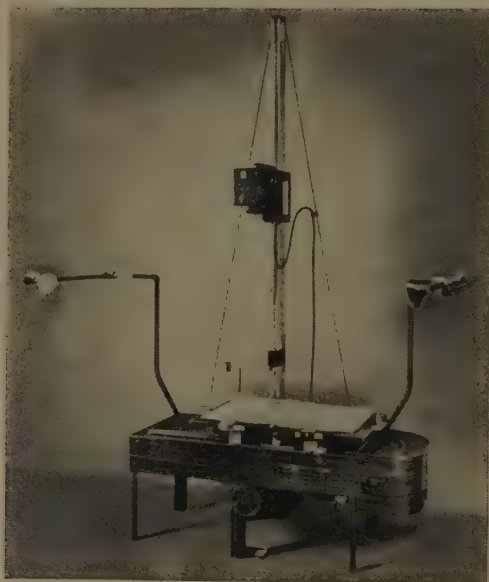


FIG. 10.—Eastman Micro-File Recordak Model C

More than 4,000 installations of Recordak equipment, now in daily use in the field, attest the value of microfilming methods. These installations serve a wide variety of record keeping and accounting requirements in libraries, historical societies, newspapers, banks, mercantile establishments, insurance companies, government offices, public utilities, hospitals and industrial organizations.

Problems in Mass Reproduction of Material in Foreign Collections*

RALPH H. CARRUTHERS

THE SUBJECT of this paper will not come upon you as a surprise, for the reproduction of materials in foreign collections has been discussed in various quarters by many people, particularly Messrs. Downs, Leland, Metcalf, MacLeish, McMurtrie, and Vanderbilt, to all of whom I am indebted. The purpose of the present paper is to summarize some of the problems that may be involved in carrying out such projects.

In early times manual transcription, which was slow, inaccurate and expensive, was the method of multiplying the number of copies of the written word. Aside from donation or purchase, it was the only way by which libraries could add to their collections. The invention of printing made it possible for many libraries to have identical copies, but at the same time the library lost some control of the production of multiple copies; in other words, control over the perpetuation of texts, for many worth-while manuscripts were never printed and were subsequently lost. Another effect of the invention of printing which should not be overlooked was the increase in the production of books. No library could achieve completeness even though it limited itself to a specific field.

Such later inventions as photo-offset printing and copying by the photostat process enabled the library to acquire a certain amount of material which otherwise was not available. The first method requires an edition of at least 1,000 copies to make the venture commercially possible, and the second, while good for a single copy, is exceedingly expensive. It is only recently that a new and promising duplicating process has come into view. Microfilm is cheap enough to use for a

*Paper read before a joint session of the Board on Resources of American Libraries and the University Libraries Subsection of the Association of College and Reference Libraries at the American Library Association Conference, Cincinnati, May 1940.

single copy edition and yet does not rule out the possibility of extending the edition if, as, and when necessary. Through this new process the library may hope to regain some measure of control over the multiplication of copies, and consequently better control over those sections of our heritage which should be saved.

America, relatively speaking, is a new country; naturally our libraries lack the research material necessary for the advancement of scholarship. Much of this is concentrated in the older European countries, although a considerable quantity is scattered elsewhere throughout the world. The great cry has always been for the acquisition of this material, or copies of it, so that American scholars will not have to travel far afield and expend large amounts of money and time. In many cases travel is impractical. Large scale copying of the essential material by means of microphotography seems to offer a reasonable solution.

There is a further reason for wholesale copying; paper is perishable and with it the thoughts written thereon. Fire, flood, insects, fungi, and ravages of time have already taken toll, as has destruction by man himself. In these days of world upheaval the latter is probably the greatest danger ever to threaten the records of civilization.

There are those who claim that the New World is the future hope of civilization. Regardless of what happens, the American scholar is bound to play an important part in the future. To enable him to carry on to best advantage it is necessary that he have access to as many of the records of the past as possible, for civilization is not founded by one man alone nor are ideas born full-blown. It may seem so at times, but in general all new additions to our sum of knowledge are built upon what has gone before. It is, therefore, the duty and function of the library to collect and preserve the records of the past, and this project is one of the greatest efforts of all time to be dedicated to that purpose.

Indeed, the plan is so immense that there are no precedents for the methods necessary to its execution. There is, however, some previous experience which may be drawn upon: Project A of the Library of Congress; the University of Chicago demonstration at the Paris Exposition of 1937; and the project of University Microfilms, Inc., of copying all books in the English language before 1550.

The first problem is that of organization. To carry out an extended project will require a considerable sum of money which must come from some source other than the library. To secure these funds and to administer the project a general guiding committee is needed. This committee, either directly or through subcommittees, will be responsible for the selection of the material to be copied, for negotiations for permission to copy, for the organization of camera crews, for the purchase of the necessary equipment, for setting the standards to be observed in copying, for the transportation and supervision of the camera crews in the field, and the return of the microfilm to America. Hereafter necessary arrangements for the storage, permanent supervision of the deposited microfilm, and its distribution, as well as the extension of the project to include material not yet copied, would need to be made.

Perhaps the knottiest problem of all is the selection of material to be copied, for while it is obviously impossible to reproduce everything in the world, yet it is too costly and time consuming to make the selections with a fine tooth comb. It will be necessary to find the happy medium between wholesale copying and exhaustive selection. This can only be achieved if certain fundamental principles are set up to guide the selection process. The first and most important decision that must be made affects all subsequent principles. *Is the goal to copy as much as possible, as quickly as possible, for as little money as possible, or should the longer and more considered view be taken?* In other words, is this a rescue expedition with the scythe of Father Time at our heels, or is it a well-considered methodical crusade? Without attempting completeness or finality, the following principles for selection are suggested: (1) the chances of the survival of the material; (2) the essential backgrounds of our civilization; (3) the building up of collections obviously inadequate in our libraries; (4) inaccessibility of the material; and finally (5) the technical limitations which will govern what types of material can be copied with present photographic equipment and supplies.

Important units whose chance of survival should be carefully weighed include fragile or unique, older and rarer material, and that not already safeguarded by bombproof shelters, fireproof buildings

and the like. To these may be added inventories, catalogs and other bibliographical apparatus, much of which belongs in the class of unique material which would be practically irreplaceable if destroyed.

The background of our American civilization obviously includes practically all the past endeavors of mankind, particularly those race native to Europe. Philosophy, political economy, religion, the arts, the sciences, literature, and history, are all important, and the records may be books, periodicals, newspapers, manuscripts or governmental records. It will be necessary to decide which is the most important and how much can be copied. One suggestion that comes to mind is the completion of the Library of Congress Project A collection of documents relating to American history.

An extensive survey would not be required to determine weak spots in the collections now existing in our libraries, though it will be more difficult to select individual items. It is doubtful if the present project can make American collections anywhere near complete, but at least a beginning can be made. To carry on the work copies of the bibliographical apparatus previously mentioned will be of great assistance.

In determining what material might be called inaccessible, it would be well to bear in mind that there is an abundance of material outside the confines of Europe and sometimes well off the regular traveled routes of the world.

Once the principles of selection have been laid down, the task has become easier, although it is by no means complete. The actual technique of selection still offers difficulties. Comparison of foreign library catalogs and existing union lists with resources available in America would be costly and time-consuming. If a simple date line were set, as for example, 1640, much of value would be missed. If for the sake of simplicity entire libraries up to a certain size were to be copied, there would be too much duplication. It might safely be said, however, that special collections in so far as known should receive special consideration. The opinions of experts in various fields of knowledge is another method of approach to the problem. These of course would have to be passed upon by a final committee of selection. It might be possible to solicit the opinion of foreign curators and experts as to what would be worth while, what is unique, and what

ey are willing to have copied. These techniques of selection have bearing on the permission to copy. Undoubtedly a combination of various techniques will be necessary.

The committee securing permission to microfilm in the various foreign collections cannot anticipate all problems in advance. Part of the negotiations can undoubtedly be carried on by correspondence, though it is more than likely that a special envoy will have to be sent directly to the scene of operations. In many cases the path could be smoothed through the cooperation of the diplomatic service of the United States. Among the difficulties that are likely to be met is the time-honored European custom of demanding a gift copy of everything that is reproduced. This demand would not be an insurmountable obstacle, although it would certainly add to the cost of the project. Another difficulty is the general reluctance of many curators to destroy the uniqueness or the rarity of material in their possession by allowing copies to be made. On the other hand there is a world-wide kinship between scholars and guardians of literature, regardless of the individual library and the country in which the library is situated. This kinship should indeed be stronger than ever in these days of hectic upheaval, simply because of general realization that the records of civilization are in danger.

There is one thorny point that must be faced squarely—it is quite conceivable that we would be allowed to copy some types of material if we were willing to place restrictions upon their use, further reproduction and publication. These restrictions, if accepted will place heavy responsibility upon the guiding committee now and hereafter, and there are bound to be numerous complications. We shall have to decide just how far we are willing to go in the matter of restrictions.

While permission is being obtained, the organization of the camera crews and the gathering of equipment can be under way. The minimum for a camera crew cannot be less than two men, one operator and one to prepare material for the camera. How much training the operator should have depends somewhat on the equipment used and the photographic facilities available in the library in which the crew is working. Many libraries will not have facilities for processing, and films will have to be sent to some center for that purpose. Hence, the operator

need not be an expert photographer. In some cases it will be advisable and perhaps compulsory to use local operators, but the supervisors would undoubtedly come from this country. It probably will be necessary to train both operators and supervisors in some sort of intensive course of instruction in methods to be used and standards to be followed.

The selection of equipment depends upon machinery available on the market, the type of copying to be done, local facilities for processing, and to some extent on the space, light and power facilities in the local library. It may be advisable to rent or purchase equipment of foreign manufacture if it will meet American standards of production. Since the selection of personnel and equipment is so closely connected with the material to be copied and with local working conditions, perhaps the order of approach to the problem should be somewhat as follows: First, determine the type and extent of material to be copied; second, canvass the local facilities for camera operation and for processing; third, select the equipment needed to accomplish the job; and fourth, recruit the necessary personnel.

To assure good uniform and permanent copies, it will be necessary to set up standards covering the type of film and emulsion to be used, the degree of minification that may be permitted, the orientation of the text within the frame, the editorial notations which should appear on the film, and such technical matters as the gamma and the tolerance for residual hypo. In most cases recognized standards may be followed, although there are still some details to be worked out. Among these are the permissible degree of minification, the placement to be used, and the editorial notations on the film.

Editorial notations for the most part will have to be photographed on the film at the time the original is being copied. It is a well-known fact that the isolation of a copy from its environment causes some loss of significance. It will therefore be necessary to state the source of the copy and other details of provenance. The reader of a microfilm copy, or a copy of any kind, must have a certain amount of faith in its completeness. However, faith is not enough to settle bibliographical points or account for a missing page. Therefore, some sort of collation would seem necessary—that is, if there are missing pages in the original, it

ould be made clear that it is the original at fault and not the camera operator; for the same reason the film copy should be checked to make sure that nothing has been missed. This double collation is rather expensive and may not be possible in all cases.

Other details which librarians would like to see on the leader of the film include some indication of the size of the original, the date of copying, and the designation of the particular crew involved. At this time, or perhaps later when a positive is made, there should be some indication of the restrictions, if any, placed upon the use of the film copy. Naturally all film should bear the name of the sponsor. These are merely suggestions and there are probably many other details to be considered in the important problem of editing in the field.

Before the microfilm copies begin to arrive, arrangements for storage and distribution should be well made. Should there be one central depository, or should there be a number of regional depositories? Should the material be allotted to the collections in the country which are already strong but incomplete? Should the master negative be used for making copies of any kind other than duplicate negatives? The answers to these questions depend on the facilities of the depository for making copies, facilities for making enlargements, on the decision whether to lend the microfilm (whether duplicate negative or positive copy) and on such restrictions as may have been placed upon the use of the copy. Closely connected with this problem of storage and distribution are the facilities available for cataloging. Perhaps it could be done simpler in a central depository such as the Library of Congress, or perhaps it would be wiser to distribute the work to various institutions.

Large scale copying in foreign depositories is a tremendous undertaking and its problems have been briefly sketched. Once carried through, the results will be of incalculable benefit to American scholarship. Above all, we shall have saved at least a part of the essential records of our culture and civilization. Regardless of what happens we shall have done our part in assuring the continuance of research and the free play of the mind. May we say with Sherwood's latest play, "There shall be no night."

The International Federation for Documentation*

F. DONKER DUYVIS

DURING his last visit to Europe my friend Vernon Tate invited me to give a short account on the aims and activities of the International Federation for Documentation. I feel some hesitation in accepting this invitation, because speaking about documentation before an American forum is rather like carrying owls to Athens. Perhaps the word "documentation" is not as common in the United States as in Europe, and in some circles at least it is even considered more or less of a barbarism. If functions are analyzed, however, many American librarians and archivists will conclude that documentation always was a part of their daily work, just as Mr. Jourdain in Molière's *Bourgeois Gentilhomme* discovers that all his life he has spoken prose.

According to the latest definition, documentation means: *the establishment, identification, collection, and use of documents*. Definitions are dangerous, for a word acquires its real meaning from the practical use people make of it. Thus a certain complex of conscious and unconscious associations of thought together form a certain concept.

Documentation in Europe developed as a reaction against old-fashioned concepts of librarianship and archivism, which held that practically the only task of librarians and archivists was to conserve and protect books, manuscripts, and other documents, in order to safeguard the treasures of civilization for later generations. It would be unjust to say that this point of view does not deserve respect. To the conservatism of the old-fashioned librarians we owe the preservation of many priceless treasures throughout the centuries. It is doubtful whether revolutionary, efficiency-searching *avant-gardistes* of the modern type would

* A portion of this paper was read before a joint session of the Bibliography Committee and the Archives and Libraries Committee at the American Library Association Conference, Cincinnati, May 1940.

we kept with such care all kinds of material whose value was not exactly recognized at the moment it was produced. However, in many European libraries and archives, the reader's and user's point of view was considered of secondary importance. Cataloging was most primitive; it was hardly possible to make a search by subject, for systematic arrangement on the shelves was not practiced, and subject catalogs were poorly managed. Particularly in scientific and technological circles this situation was unbearable. Workers began to help themselves; bibliographical catalogs were established in the offices of learned societies and other institutions, and periodical bibliographies and abstract journals were issued.

This was about the situation when, near the end of the last century, Henri LaFontaine and Paul Otlet evolved the audacious plan of establishing a world center of information. In 1895 they organized an international congress for bibliography which led to the foundation of the International Institute of Bibliography (*Institut International de Bibliographie*). The first task of the Institute was to create a center in which the world's literature would be indexed by subject and author. It is well known that this aim has only been fulfilled on a relatively small scale. However, it is worth while to notice that from the beginning the founders recognized that the United States was already far ahead in matters pertaining to the organization of information. Two important developments were imported from America and in the long run were accepted by many European centers. From Melvil Dewey came the Decimal Classification, which became the basis of the so-called Universal Decimal Classification. Henry Field, the American leader of the Concilium Bibliographicum in Zurich, demonstrated the importance of the American 3 x 5 inch card, which was gradually introduced throughout Europe.

In the period between 1895 and 1914 the International Institute of Bibliography gradually developed. Various congresses were organized. The word "documentation" was introduced in the large sense as indicated above, but it should be stressed that this "documentation" was mainly appreciated in circles of science and technology. About 1905, however, another group became interested in "documentation." These were the chiefs of filing departments of municipalities and private

enterprises; in other words the archivists of current archives. In Holland today over six hundred municipalities use standard methods of filing with standardized materials and the uniform classification system found in the last edition of the *Universal Decimal Classification*.

In 1903 the systematic part of the first complete edition of the *Universal Decimal Classification* was completed. Although based on the Dewey Decimal Classification, some fundamental features were introduced, namely the auxiliary tables for topography, time, form, language, point of view, special tables of analytical subdivisions, and the so-called colonning system, which permitted a certain flexibility and enabled its universal application outside libraries.

In 1907 the Institute undertook another innovation whose importance is only now being recognized. Goldschmidt and Otlet published an article, "Sur une Nouvelle Forme du Livre. Le Livre Microphotographique."¹ This recommended the library use of microfilm, of which Dagron during the Paris siege had made the first practical application by transmitting messages on microfilm by pigeons. A small reading apparatus for projecting texts on a table or even on the ceiling was constructed. The advantages of space saving were stressed. Most librarians and archivists considered the whole scheme as childish and the apparatus as playthings which should not be taken seriously—a fate shared by many of the projects originated by Otlet and his friends.

On the whole the I.I.B. had rather a prosperous time. It was organized as an association with many individual members. The Belgian government created a well financed, official institution, the Office International de Bibliographie, which cared for the central repertories and collections of the I.I.B. The large bibliographic card system contained in 1914 about eleven million cards. In Switzerland the Concilium Bibliographicum of Zurich acted more or less as agency for the I.I.B. In Germany it was morally supported by the Organization of Wilhelm Ostwald, called Die Brücke. A strong supporting institution, the Bureau Bibliographique de France, was created in France by General Sebert and a number of scientists, among them Charles Richet, the famous physiologist, who took an active part. This was about the status of international organization for documentation when the World

¹*Bulletin of the I.I.B.*, XII, 61-69.

War began in 1914. The writer had the privilege of consulting many pre-war archives and of becoming acquainted with a number of the pre-war collaborators of the I.I.B. Many of them have now shut their eyes forever. Quite apart from the material achievements of the I.I.B., the founders created an imponderable something which is of the greatest importance. Their enthusiasm and idealism gradually surrounded them by a group of men who, even when they might not share the utopian ideals of the leaders of the Institute, had the same desire to promote international understanding for intellectual cooperation in its widest sense and for the dissemination of knowledge in order to give the benefit of this knowledge to mankind.

In examining the older archives of the I.I.B. it was interesting to find how LaFontaine and Otlet had erected the invisible structure of their organization. At the beginning of the present century a typewriter was still a luxury for a scientist; from a graphological point of view it was interesting to see the diverse handwriting of intellectual workers of many countries representing different philosophical, ethical, and religious conceptions. The two Brussels leaders succeeded in causing nationalists and Roman Catholic priests, nationalists of various nations and fierce revolutionary socialists, para-psychologists and positivists to work side by side for a common purpose. If ever a Nobel prize was deserved, I think it was when the Nobel prize for peace was awarded to Henri LaFontaine in 1913.

It may be that there is much to criticize about the utopianism and the vast projects of the I.I.B. Perhaps there is some truth in the saying that the fathers of the I.I.B. were born a century too early for the great things they had in mind, but just a quarter of an hour too late as far as worldly affairs were concerned. Keeping appointments on time, catching trains, and similar mundane considerations never bothered them. It is undeniable, however, that they created a lasting, spiritual background for the present international organization of documentation.

During the war the activity of the I.I.B. completely stopped. The last number of the *Bulletin* was issued early in 1914. Official nonperiodical publications numbered one hundred twenty-five. All work was stopped, and the offices were occupied by the military forces.

In 1920 the first attempt was made to reestablish the old organization. A Conference was held in Brussels in the Palais Mondial.² However, in this Conference former enemies were not both represented, as the spirit of resentment was still too strong. In 1924 there were two small meetings of representatives of different countries in The Hague.³ A regrettable feature was the disinclination of the younger generation to lend a helping hand. Perhaps it is not astonishing that the immediate postwar generation had lost its faith in international fellowship and justice. Meanwhile the Brussels secretariat of the I.I.B. was experiencing political and financial troubles, and international work was severely handicapped. The central repository of Brussels was likewise subjected to severe and to a certain extent justified criticism. It had grown to about thirteen million cards, but even this number represented only a fraction of the number required to cover important world literature. More awkward than its lack of completeness, however, was the fact that there was no qualified staff to supply answers to questions. In fact a fundamental drawback of a large polyscientific information service is the relatively small number of inquiries scattered over many special scientific fields. Either the regular staff is incapable of specialized work, or it contains a number of specialists who can only work part time. The I.I.B. gradually lost the greater number of its pre-war members, and the situation grew awkward.

In the 1924 meeting at The Hague it was decided to effect a fundamental change in the organization. Instead of an international association of individuals, a federation of national groups and of international specialized scientific associations would be attempted.⁴ The federation was not only desirable as a means of formal organization, but also as the basis of a scheme of practical exchange of information, since the large center seemed impracticable. Two types of organization

²A building which the Belgian Government had placed at the disposal of the Union Internationale des Associations Internationales for creating a world center of intellectual cooperation.

³The late Professor von Hanffstengel and Professor Nikolas Roussinoff (at that time an officer of the Central Book Chamber of Moscow) were present at these conferences.

⁴In the same year in Great Britain the Association of Special Libraries and Information Bureaux had been founded. Three years earlier the Dutch Institute of Documentation had been created.

were considered: a federation formed by specialized scientific international associations (vertical organization) and a federation of purely national bodies of encyclopedic character (horizontal organization). National organizations are frequently difficult to establish. They do not always cover all documentary interests in a certain country, and in practice tend to concentrate their activity on some special branches. On the other hand some specialized national organizations are more or less international in scope. The American *Chemical Abstracts* is an example. Some international institutions are far less international than they pretend to be, and all scientific international associations together, although numerous, do not begin to cover the world's scientific documentary interests. From considerations it seemed desirable to synthesize both "vertical" and "horizontal" organizations, and to accept both as members of the prospective federation. It was easier to formulate the new principles in the statutes than to bring them into practice.

The means for convening a large Conference were not available, so the organization developed gradually. In 1928 and 1929 some preparatory Conferences were held in Cologne and London. In the latter some improvements were made in the statutes. The first large Conference was held in Zurich in 1930. It was followed in 1931 by a still larger Conference in The Hague, and the name of the Institute was changed to the Institut International de Documentation. This name was selected in order to clarify the scope of the Institute and to express the expansion of activity beyond bibliographic work. Other Conferences followed: Frankfurt am Main, 1932; Brussels, 1933; Brussels, 1934; Copenhagen, 1935; The Hague, 1936.

In 1937 a Congress was organized in Paris under the auspices of the Comité International de Documentation. The discussions during this Congress caused the Institute to alter once more its name and statutes. It became the International Federation for Documentation. In fact, the time was ripe for modification, as national groups for documentation had been formed and could act as sections of the Federation. National sections were in existence in Belgium, Czechoslovakia, Denmark, France, Germany, Great Britain, the Netherlands, Poland, and Switzerland. "Correspondent" associations or institutions had been formed in Hungary, Italy, Rumania, Sweden, and Russia.

Apart from national representation, the Federation has individual contact with numerous persons and institutions in other countries. According to the statutes, the possibility exists of having individuals or private institutions, libraries, etc. as so-called "associate members." It is hoped that gradually the associate members of the Federation may join together to form a "correspondent" group, and finally organize national members⁵ of the Federation.

It was a happy circumstance that at the Oxford Conference of 1938 as well as at the Zurich Conference of 1939 the United States was officially represented and took an active part by submitting a number of valuable reports. Moreover in the course of the past few years several American associate members have joined the Federation.

The main topics discussed in recent Conferences were: general bibliographic methods; abstracting; standardization of periodicals; classification; scientific, industrial, and economic information services; information service in general libraries; public administrative filing; business filing methods; and photographic or other reproduction methods. Of course several of these topics are general in character and concern humanistic as well as natural sciences, technology, and economics.⁶ Nevertheless the majority of reports submitted to F.I.D. Conferences or appearing in the *Bulletin* are prepared by scientists, industrialists, economists, or librarians chiefly interested in science. It is to be hoped that more interest from the humanities will develop and so impart automatically a broader significance to the word documentation.

At the present time the principal activities of the F.I.D. include:

1. The Conferences
2. The Bulletin: *F.I.D. Communicationes*
3. Standardization in matters of documentation
4. Classification
5. Reproduction methods
6. Exchange of bibliographies, of information, etc.

Reflecting the constantly increasing interest in documentation, recently a Conference has been held practically every year. Equally im-

⁵In the terms of the statutes, *membres effectifs*.

⁶As an example, one of the problems discussed at Oxford (1938) was the transcription of cyrillic characters.

stant with the direct results of papers and official discussions are the direct results obtained through the friendly relationships between regular visitors to the Conferences and the informal discussions they have between one another. In fact, I believe this invisible and not formally organized network of relationships created by the F.I.D. and earlier by I.I.B. and I.I.D. is probably its most important and lasting achievement.

Of course the present international situation has seriously damaged personal contacts. A Conference in Berlin and in Frankfort had been planned in commemoration of the invention of printing by Gutenberg. It is not likely that this Conference can take place. It is hoped that it will be possible to convene the Congress in Rome planned at the invitation of the Italian Government for 1942. Our Hungarian friends invited the Congress to Budapest, and last year a Conference in one of the Scandinavian countries was suggested. We hope that as soon as the war is finished, the Conferences will be regularly continued.

The original *Bulletin of the Institut International de Bibliography* collapsed in 1914. In 1924 I made a vain attempt to revive it, but the time was not yet ripe, and after issuing two numbers, little more than a nasty printer's bill was left. Another periodical, called *Documentatio universalis*, was started but was not a success. However, after the transformation of the I.I.B. into the Institut International de Documentation, it was decided to issue a periodical which was called the *I.I.D.* (later the *F.I.D.*) *Communicationes*. The invaluable financial as well as technical support of the Royal Dutch Oil Company was obtained, and it supported us through the difficulties of the first years. The periodical is now comparable with others in the fields of bibliography, librarianship, etc. The present war threatened the continuation of the *Communicationes*, and at the end of 1939 there was serious doubt whether the *Communicationes* could be continued. However, the Rockefeller Foundation most kindly decided to help us through the present difficulty. The *Communicationes* appear four times a year, but are not a quarterly in the strict sense of the word, because the time of issue depends largely upon the organization of the Conferences, since a good deal of conference reports and discussions are published in them. Apart from original articles in the field of documentation, the *Communicationes*

contain news rubric and a current bibliography, usually provided with abstracts, concerning documentation. The annual index of the *Communicationes* is arranged systematically and for the time being may be considered as the most exhaustive bibliography of literature on documentation.

At present, matters concerning standardization in documentation are handled by a joint committee of the International Federation for Documentation, the International Federation of Library Associations, and the International Federation of the National Standardizing Associations (I.S.A.). Several problems of standardization have been discussed in this Committee and have been accepted by various national bodies. Examples of these are: the size of bibliographic cards, the form of bibliographic references and of abstracts, the abbreviation of titles of periodicals, the size and the indexes of periodicals, the so-called publisher's card, the transliteration of cyrillic characters, the size of microfilm, etc. As a rule this Committee meets during the F.I.D. Conferences, and the proceedings are published in the *Communicationes*.

The work of the International Committee on Universal Classification is strictly speaking also standardization. However, it began long before other standardization topics were considered by the international organization. A Committee was formed in 1924 as the International Committee on Decimal Classification. Originally its only task was to expand the Dewey Decimal Classification for international and universal use. Gradually this task has been enlarged to include the study of classification in general and to promote the publication of studies on classification in the *Communicationes*. Still its main work is the preparation of the editions of the *Universal Decimal Classification*. At present three complete editions are in the course of publication,⁷ while a number of abridged editions in minor languages have been published or are in the course of publication. The Committee consists of representatives of national sections of the F.I.D. and some specialized international associations. Anyone, even an outsider, may present a proposal for an expansion or correction of the classification to a secretary of a national section of the F.I.D. The proposal is first discussed with the national secretariat, and possibly with a "special

⁷3d edition in German, 4th edition in English, 5th edition in French.

secretary," generally a specialized worker in the scientific branch concerned. It is then sent to the international secretariat, where it may be reviewed. Thereupon the international secretary distributes the proposals to the other national secretaries, who again consult specialists in their various countries. As a rule some sixty proposal copies are distributed. In this way criticism of the proposal from a specialized as well as from an encyclopedic point of view is guaranteed. If there is no opposition, the proposal is considered accepted after a certain period of time. About every month the secretariat of the committee distributes a note with a series of extensions to the sections. The extensions adopted in the course of the year have been collected and issued in two loose-leaf volumes under the title *Supplements et Correctiones Classificationis Decimalis*. New pages of extensions may be interleaved in these loose-leaf volumes. At present the classification covers over eighty thousand subdivisions.

I need not say that the work of expansion requires much care. An international standardized scheme has all the advantages and disadvantages of any other standard. It is a compromise between many different aspects, and, *ipso facto*, is essentially conservative. A standard which is modified every moment is no longer a standard. Very often a newcomer may wish to modify a part of the classification according to his personal taste and does not understand that if we yielded to every such desire the classification would soon become a chaotic muddle and lose practically all its value as a tool for interchanging classified bibliographical and other data.

Nevertheless, it is inevitable that at some point modifications become necessary. We have already considered making fundamental changes in the classification and have even drafted complete schemes of revision. One of these schemes was brought before a forum in the "Reports of the 12th Conference of the I.I.D. 1933." However, a sudden and complete modification would be against all principles of standardization and should be avoided. If we reject revolution, we must follow the path of evolution. Thus our main purpose in drafting "ideal schemes" is to have a well determined aim for the evolutionary development of the decimal classification.

A further task of the Committee is to promote the application of

the *Universal Decimal Classification* and to study special methods of application, as for example the application to correspondence files.

As stated above, in 1907 the International Institute began to sponsor the idea of using the microfilm for libraries and documentation. Most librarians did not take the thing very seriously and considered the apparatus of Goldschmidt as a plaything. After war time the project was taken seriously, but it was only when American archivists and librarians took part that serious practical results were obtained. The F.I.D. (I.I.D.) in its subsequent Conferences allocated a large part of its program to the problems of documentary reproduction. A committee for documentary reproduction was established, but later it appeared better to have a permanent secretary and individual organizer to coordinate the diverse efforts. Dr. Walther Schurmeyer of Frankfort was appointed to this position. The French section displayed much activity in microfilming. M. de St. Rat and others designed and constructed cameras as well as reading apparatus. In Amsterdam Keegstra and others designed automatic and semiautomatic apparatus for various purposes. Machines built on their designs by Zeiss Ikon are now in practical use in a few Dutch offices. In Germany reading machines for library use were made by Zeiss Ikon. Meanwhile the group of reproduction experts of the F.I.D. studied other problems of documentary reproduction. Special attention was given to the problem of dropping the "silver standard" of documentary reproduction and replacing the silver bromide sensitive material by sensitive azo- and diazo- compounds. Various achievements in this direction resulted, and the Van der Grinten process for diazo-reflectography (the so-called Océ and Retoce process) is now well adapted for library use and other documentary applications. Various studies were made of reduced scale paper photocopies. There is still much to be studied and invented. It is extremely important to learn that these problems are now being studied in the United States by competent scientists and technicians. The JOURNAL OF DOCUMENTARY REPRODUCTION shows in each of its numbers that much important work has been undertaken in the new world.

The exchange of bibliographies and the supplying of information is, in principle, decentralized. The central secretariat of the F.I.D.

sors cooperation between the members of the Federation. As soon a request for information is received, it is sent to the most competent institution. The center tries to bring the interested parties into direct contact.

In this spirit the F.I.D. has always strongly urged the issue in hope of either national or international specialized directories of information centers according to the excellent example of the *Special Libraries Directory* of the United States and Canada. National directories have now appeared in Denmark, France, Germany (partly), Great Britain, the Netherlands, and Switzerland. In Sweden a similar one is projected. Specialized directories of an international character have been published in the fields of archivism, political science, pedagogics, chemistry, and agriculture. The League of Nations has issued a *Handbook of International Organization*, a *Directory of National Centres for International Lending and Interchange of Books*. Gradually in the larger European countries directories for searchers are being made available. They are still lacking for a number of minor countries, especially those with less well-known languages. A project for compiling an auxiliary Universal Documentation Directory covering the field outside the existing directories was elaborated by the F.I.D. The idea was to issue in the form of a serial work compiled data about sources of documentation in the minor European countries, and countries with exotic languages. The realization of this project would require ample funds. Just before the outbreak of the European calamity, the F.I.D. made an attempt to raise the required funds. It is obvious that in the present circumstances there is no chance of realizing the project, and the whole scheme must be postponed until further notice.

Whereas on the whole the F.I.D. abstains from centralizing information, there is still one traditional exception. Under the leadership of Louis Vermandel, the *Index Technique*, a monthly bibliography of technology and allied sciences, was issued. It was interrupted during 1914-19, but began again after the Great War as a supplement of the *Revue de l'Ingénieur*. Thereupon it was continued as the *Index Technicus* and finally as the *Repertorium Technicum*. The present bimonthly edition is for administrative reasons directed by the Netherlands

Institute of Documentation, but in principle it is still an official publication of the F.I.D. It comprises yearly from twenty to twenty five thousand titles of books and articles appearing in periodicals on technical and allied subjects. Each bimonthly issue appears in two numbers of which the last contains a short alphabetical subject index. Each bibliographical notice will, if possible, include the classification number, adopted from the *Universal Decimal Classification*, the name of the author, the title of the article or book, its source of publication and a reference to some journal in which an abstract of the publication is to be found.

The central secretariat of the F.I.D. has extensive correspondence about general organization questions and answers many small requests for information of a general character, etc.

The principle of decentralizing cooperative work in documentation is an advantage in the present awkward circumstances. If the present organization had been centralized according to the old Brussels I.I.B. scheme, the service would have been badly interrupted just now as it was in 1914. At present the local secretariats continue in so far as possible, and the central secretariat tries to maintain contact.

In Belgium, translation and printing of the fifth edition of the *Universal Decimal Classification* in the French language is being pushed. The documentation centers for odontology in Brussels, and for technology in Antwerp are continuing their activities. The Danes possess a well managed documentation center (the Dansk Central for Dokumentation) in the library of the Industrial Association (Industriforeningen). Its main field of activity is engineering bibliography, but it also deals with administrative documentation. The Comité National Français de Documentation in Paris is continuing its work energetically. In the course of the years the Bibliothèque Nationale has done important work in making bibliographies of bibliographies, in gathering and supplying information about official French publications, and in supplying other bibliographic information. Madame Suzanne Briet has pioneered in this work. A microfilm service has been developed in the Bibliothèque Nationale, principally by M. de St. Rat. In the Maison de Chimie, which in itself is an important center of chemical documentation, various methods for photographic recording

have been adopted. A general scheme for promoting scientific French research with microfilm and reading apparatus has been worked out. The latest achievement is the organization of a national bibliographic service for science and technology.

It is well known that the Germans possess a number of excellently organized specialized documentation centers for chemistry, ceramics, iron and steel, aluminum, light alloys, etc. The central service of the *Samtkatalog* at the Prussian State Library is of international value, as is the service for providing copies of scientific documents which has its quarters in the same buildings. The German standardization committee (Normenausschuss) has a special subcommittee on documentation, representing all the German interests. It was charged with editing the German edition of the *Universal Decimal Classification* (the 3rd edition of the *U.D.C.*). Moreover the committee has been very active and successful in standardizing the size and general bibliographical output of periodicals.

The most important British organizations for documentation are: the British Society of International Bibliography (B.S.I.B.) and the Association of Special Libraries and Information Bureaux (A.S.L.I.B.). The latter has its headquarters in the Science Library, where a very important central depository for science and technology is maintained. Much scientific information in the form of mimeographed bibliographies is distributed by the Science Library. The B.S.I.B. prepared the 4th edition of the *U.D.C.* in English. The A.S.L.I.B. has made many important contributions to the development of documentation methods. Its annual conferences lead to regular and fruitful exchanges of views. On the whole the British information bureaux and special libraries are maintained on a high level. The supply of photographic copies of documents has not been strongly developed in Great Britain. In recent years microphotography has made important steps in British documentation. The A.S.L.I.B. secretariat acts as a useful center for the exchange of bibliographic information. Further, the lending service of the Central Library is of international value. Of course this service is now handicapped.

The Hungarians have attacked the problems of documentation with the youthful energy of a newly independent nation. Various centers have been developed, especially in the field of social and political

sciences. With the complete collaboration of the Italian Government the Consiglio Nazionale delle Ricerche has been appointed to represent the F.I.D. in Italy. Specialized documentation centers exist for the technical and scientific management fields.

In the Netherlands, the Dutch Institute of Documentation (Nederlandsch Instituut voor Documentatie en Registratuur, N.I.D.E.R.) acts as a coordination center. It has organized services for supplying bibliographical information, diazocopies, ordinary photographic copies, and microprints of documents in its center as well as in allied institutions. It organizes conferences and working committees on documentation. It possesses a committee for the study of reproduction methods, a committee for documentation in libraries, and several committees for administrative documentation, filing, etc. It has promoted the standardization of documents and documentary methods. A union catalog of scientific periodicals and a repertory of Dutch documentation centers have been prepared by the N.I.D.E.R. For the time being the secretariat of the International Federation for Documentation is maintained in the Netherlands Institute.

In Poland the Engineering Society had organized a well managed documentation center under leadership of Mr. Rodowicz. At this moment contact with the Polish association has been lost. The Rumanian group, although it has not yet been formally organized, nevertheless is engaged in several important activities. An excellent bibliographical service has been created by the Rumanian State Railways. An active center is also formed by the Academia de Inalte Studii Comerciale si Industriale, which deals chiefly with economics and political science.

One of the oldest and most efficient supporters of international cooperation in documentation is the Swiss group, now organized as the Association Suisse de Documentation. A number of Swiss documentation centers, including railways, statistics, electricity, radio, postal administration, customs administration, etc., have been federated and have done important work in exchanging information in bibliographical publications, the creation of directories of documentation centers, and standardization. The Swedish group has not yet been fully organized, although a committee has been formed. The technical high school library in Stockholm acts as the center for the distribution of

liographical cards and for supplying copies of documents. A Union Catalog of Periodicals has been established.

Many international associations or institutions are dealing with documentation in special fields of science. Examples are the Union Internationale des Villes, the Office International de Chimie, the Bureau International de Pédagogie, the Fédération Dentaire Internationale, the Concilium Bibliographicum. Present circumstances have curtailed largely the work of such international offices.

On the whole documentation in Europe is constantly growing. During the war, the problems of war economy have caused the importance of documentation for purely national purposes to be recognized. As has been already observed, the roots of what is called documentation in Europe have their origin in the United States and conform in many respects to the established practices in American libraries and information services. We trust that the American examples will be followed on a constantly increasing scale on this side of the ocean, and that existing international cooperation will continue and develop further in a spirit of friendliness and mutual understanding to the benefit of mankind and civilization.

Source Materials for the Study of American Culture

EUGENE B. POWER

TWO INVALUABLE microfilm collections of materials for the study of American culture are announced by University Microfilms for delivery commencing January 1941.

The first of these, entitled the *American Periodical Series*, reproduces page by page all known extant magazines, as distinguished from newspapers, published in continental United States between 1741 and 1799 inclusive. Originally the accumulation of these materials was undertaken at the request of the University of Michigan, but in view of widespread interest it was decided to make the file generally available. This will be the first time that all of these periodicals will be obtainable as an integrated file in one place. No institution or individual possesses all the originals; they are scattered in many collections throughout the country. Permission has been secured to film the originals and every effort has been made to obtain the best preserved copies for reproduction.

The importance of the collection in the study of American history and literature needs no emphasis. These periodicals provide basic source materials for the study and understanding of 18th century American society in all of its phases, and are essential for the study of American thought and writing, particularly fiction, poetry and the essay.

In the interests of completeness it has seemed advisable to include reproductions of the first two American magazines of 1741 which are at present available in editions of the Facsimile Text Society. It should be pointed out, however, that no facsimile editions of the remaining 87 volumes are at present available or announced for publication. The following periodicals compiled from the best bibliographic data available lists chronologically the 89 magazines now being microfilmed for the collection. The suggestion of additional titles will be welcomed.

- The General Magazine and Historical Chronicle*, Philadelphia, January 1 to June 1741
- The American Magazine*, Philadelphia, January 1741 to March 1741
- The Boston Weekly Magazine*, Boston, March 2, 1743 to March 16, 1743
- The Christian History*, Boston, March 5, 1743 to February 23, 1745
- The American Magazine and Historical Chronicle*, Boston, September 13 to December 1746
- The Independent Reflector*, New York, November 30, 1752 to November 1753
- The Occasional Reverberator*, New York, September 7, 1753 to October 1753
- The Instructor*, New York, March 6, 1755 to May 8, 1755
- John Englishman*, New York, April 9, 1755 to July 5, 1755
- The American Magazine and Monthly Chronicle*, Philadelphia, October 57 to October 1758
- The New American Magazine*, Woodbridge, N.J., January 1758 to March 1759
- The New England Magazine*, Boston, August 1758, October 1758 and March 1759
- The North-Carolina Magazine*, New Bern, June 1-8, 1764 to (1765?)
- Ein Geistliches Magazien*, Germantown, 1764 to 1771
- The American Magazine or General Repository*, Philadelphia, January 1769 to September 1769
- The Penny Post*, Philadelphia, January 9, 1769 to January 27, 1769
- The Royal Spiritual Magazine*, Philadelphia, January 1771 to December 1771
- The Censor*, Boston, November 23, 1771 to May 2, 1772
- The Royal American Magazine*, Boston, January 1774 to March 1775
- The Pennsylvania Magazine*, Philadelphia, January 1775 to July 1776
- The United States Magazine*, Philadelphia, January 1779 to December 1779
- The Boston Magazine*, Boston, October 1783 to October 1786
- The Gentleman and Lady's Town and Country Magazine*, Boston, May 1784 to December 1784
- The American Monitor*, Boston, October 1784
- The New-Haven Gazette and the Connecticut Magazine*, New Haven, February 16, 1786 to June 18, 1789
- The American Musical Magazine*, New Haven, May 1786 to September 1787

The Columbian Magazine, Philadelphia, September 1786 to February 1790

The Worcester Magazine, Worcester, April 1786 to April 1788

The New Jersey Magazine, New Brunswick, December 1786 to February

1787

The American Museum, Philadelphia, January 1787 to December 1790

The American Magazine, New York, December 1787 to November 1788

The Massachusetts Magazine, Boston, January 1789 to December 1790

The Arminian Magazine, Philadelphia, January 1789 to December 1790

The Children's Magazine, Hartford, January 1789 to April 1789

The Gentlemen and Ladies' Town and Country Magazine, Boston, February 1789 to August 1790

The Christian's, Scholar's, and Farmer's Magazine, Elizabethtown, N.J. April 1789 to March 1791

Courier de Boston, Boston, April 23, 1789 to October 15, 1789

The New York Magazine, New York, January 1790 to December 1797

The Universal Asylum, Philadelphia, March 1790 to December 1792

The American Apollo, Boston, January 6, 1792 to September 28, 1792

The Musical Magazine, Cheshire, Baltimore, Philadelphia, 1792 to 1793

The Lady's Magazine, Philadelphia, June 1792 to May 1793

The Columbian Museum, Philadelphia, January 1793

New Hampshire Magazine, Concord, June 1793 to November 1793

The Free Universal Magazine, Baltimore, June 1793 to January 1794

United States Magazine, Newark, April 1794 to August 1794

The Monthly Miscellany or Vermont Magazine, Bennington, April 1794 to September 1794

The American Monthly Review, Philadelphia, January 1795 to December 1795

The Rural Magazine, Rutland, Vt., January 1795 to December 1796

The Philadelphia Minerva, Philadelphia, February 7, 1795 to July 7, 1798

The Tablet, Boston, May 9, 1795 to August 11, 1795

The New York Weekly Magazine, New York, July 1, 1795 to June 28, 1797

The Theological Magazine, New York, July 1795 to February 1799

The Literary Miscellany, Philadelphia 1796

The New Star, Hartford, February 2, 1796

The Political Censor, Philadelphia, March 1796 to March 1797

The Experienced Christian's Magazine, New York, May 1796 to April 1797

The Nightingale, Boston, May 10, 1796 to July 30, 1796

- The Lady and Gentleman's Pocket Magazine*, New York, August 1796 to
ember 1796
- Monthly Military Repository*, New York, 1796 to 1797
- The United States Christian Magazine*, New York, 1796
- The Remembrancer*, Exeter, N.H., January 1, 1797 to March 20, 1797
- The American Universal Magazine*, Philadelphia, January 2, 1797 to
rch 7, 1798
- The Literary Museum*, Westchester, Pa., January 1797 to June 1797
- The Methodist Magazine*, Philadelphia, January 1797 to August 1798
- South Carolina Weekly Museum*, Charleston, January 1797 to July 1798
- The Weekly Museum*, Baltimore, January 1797 to February 1797
- Time Piece and Literary Companion*, New York, March 13, 1797 to Aug-
30, 1798
- The New Star*, Concord, N.H., April 11, 1797 to October 3, 1797
- The American Moral and Sentimental Magazine*, New York, July 3, 1797
May 21, 1798
- The Medical Repository*, New York, July 1797 to 1800
- The New Hampshire and Vermont Magazine*, Haverhill, N.H., July 1797
d October 1797
- Sentimental and Literary Magazine*, New York, July 5, 1797 to August
1797
- The Philadelphia Monthly Magazine*, Philadelphia, January 1798 to De-
ember 1798
- Thespian Oracle*, Philadelphia, January 1798
- The Key*, Frederick Town, Md., January 13, 1798 to July 14, 1798
- The Weekly Magazine*, Philadelphia, February 3, 1798 to June 1, 1799;
suspended from August 25, 1798 to February 9, 1799
- The Rural Magazine*, Newark, February 17, 1798 to February 9, 1799
- The Vigil*, Charleston, February 27, 1798 to April 3, 1798
- The Religious Monitor*, Danbury, Conn., April 7, 1798 to September 22,
98
- Philadelphisches Magazin*, Philadelphia, May 1798
- The General Magazine and Impartial Review*, Baltimore, June 1798 to
ugust 1798
- The Humming Bird*, Newfield, Conn., June 9, 1798
- The Dessert to the True American*, Philadelphia, June 14, 1798 to Aug-
st 19, 1799
- A Republican Magazine or Scourge of Aristocracy*, Fairhaven, Vt., Octo-
er 1, 1798 to December 15, 1798

The Christian's Monitor, Portland, Maine, December 8, 1798 to June 8 1799

The Philadelphia Magazine and Review, Philadelphia, January 1799 to June 1799

The Monthly Magazine and American Review, New York, April 1799 to December 1800

National Magazine, Richmond, June 1, 1799 to 1800

This collection contains approximately 66,000 pages. It has been reproduced on 35mm. double perforate film with single frame exposures except where the type and page size were such as to necessitate the use of a double frame. A complete catalog, giving the location of each item on the roll, will be provided. The film will be furnished in buckram cases, each containing six 100-foot reels in cardboard cartons, which are suitable for storage on ordinary library shelves. It is intended that the collection will be sold as a unit on a subscription basis with payment distributed over two or three years to accommodate library budgets. The rate has not yet been definitely established as it depends to some extent on the number of subscribers, but it is expected to be between $\frac{1}{2}$ cent and $\frac{3}{4}$ cents per page.

The second microfilm collection of materials for the study of American culture consists of the complete texts of the original editions of approximately 250 books of representative writings about America and Americans between 1493 and 1800, beginning with Christopher Columbus' *Epistola*, Rome, 1493, and ending with *Washingtoniana*, Baltimore, 1800. With the exception of four titles all are in English. This collection supplements the *American Periodical Series* and provides material for the study of many topics, as, for example:

1. The development of travel literature and geographical knowledge during the period of exploration.
2. Colonization promotion.
3. Forms of government for certain colonies.
4. Indian and American culture.
5. Early American printing.
6. Development of religious thought, including the formulation of New England orthodoxy in prose and verse, the Puritan ideal of character, the Antinimian and Gorton controversies, the issue of religious liberty in New

England, Quakerism v. Puritanism, the witchcraft delusion, Puritanism and Deism, the passing of New England orthodoxy, and controversy over Deism.

7. Development of belles-lettres and literary genres.
8. Evolution of historiography in the 18th century.
9. American Revolution in pamphlet, verse and drama.
10. Travel in America in the 18th century.
11. The Federalist and Anti-Federalist controversy.
12. Nationalism of the 1790's.

The titles have been carefully selected with the advice of nationally known authorities. Reprint availability and bibliographical interest have been kept in mind, but the main criterion has been cultural significance. Rare but basic works never reprinted have been given preference. Originals of works which have been reprinted and the reprints exhausted have been included, while works readily available in current reprints have been omitted, save in a few instances where the original edition has some special interest for the student. If interest warrants the list will be expanded. A catalog, listing and briefly describing books included will be available shortly and will be supplied on request.

The 250 books comprising the *American Culture Series* contain approximately 69,000 pages, and will be furnished at the same rate and in the same manner as the *American Periodical Series*. For both series printed catalog cards giving complete classification and location on the film rolls will be provided. While it is expected that initially the collections will be purchased as units, individual items from either collection may be made available later at special rates.

The microfilm collections herein described are being prepared to satisfy a rapidly growing interest in the study of American culture in universities and colleges. In the past the lack of source materials relating to the first two centuries of American culture has made this study difficult or unfruitful. Some of the largest libraries possess only fragmentary collections of these materials. Smaller libraries have only recent reprints and anthologies. The two collections described will enable large libraries to expand their resources and to preserve originals from damage by student use. Smaller libraries will be able to place extensive and rare source materials which they could not hope to obtain in their original form at the disposal of students and scholars.

One Bottleneck Less

M. LLEWELLYN RANEY

TWELVE years ago began the filming of commercial paper, especially bank checks. Coincidental with the rotary camera designed for this purpose appeared the complementary projector, since each was useless without the other. Scholars, however, began filming long before the production of any textual reading machine, except in the case of newspapers, and they improvised their magnifiers.



FIG. 1.—Engineering Model of S.V.E.
Microfilm Reader

In recent months libraries have come to be provided with excellent instruments of universal applicability except to strips of film too short for spooling, as somewhat earlier they had been provided with readers of fixed medium reduction ratios. But these instruments are

yond most private purses and can be bought only sparingly even by institutions. The cry has continued to be for a simple but good machine at moderate price.

The cry is at last to be answered. The Society for Visual Education (300 E. Ohio St., Chicago) has yielded to importunities and designed a revolutionary instrument to be added to its fleet of projectors that have so well-served the classrooms of the nation for decades.

It is a small collapsible affair, the optical system disappearing in a case after use. The whole thing will weigh less than 15 pounds and be carried by a baggage handle. Only a 100-watt lamp will be required.

The instrument will have a hooded translucent screen a foot square, with magnification fixed at twelve diameters. The lens is excellent. Text laid in any direction can be handled, and strip film as readily as rolls, without the necessity of dismounting the spool carriage. In fact this reader could even qualify for newspaper skimming at about two thirds natural size, if demand arose for the simple attachment necessary to accommodate nonperforate 35mm. film.

The price will depend on the initial reaction to such pronouncements as this, but in any instance it will be in the portable typewriter price range. Inquiries should be addressed to vice-president Bert J. Kleerup, of the Society for Visual Education, the designer of the forthcoming instrument.

Latin-American Microfilming Project at Brown University

JAMES H. CASE, JR.

BROWN UNIVERSITY has recently been the recipient of a generous grant from the Rockefeller Foundation to enable it to initiate a project for microfilming material on the history and culture of Latin America. The material to be photographed will relate to the period of the colonization of Latin America and emphasis will be placed upon printed works published in South America, Central America and Mexico.

Plans for acquiring a photographic collection of Latin-American material have been projected over a period of several years, although the grant from the Rockefeller Foundation is designed to cover the operation of the project for an initial three years. Last spring the University announced the appointment of Dr. Irving A. Leonard as Professor of Hispanic Civilization and one of Dr. Leonard's duties will be the direction of this project. He will be assisted by Dr. Lawrence C. Wroth, Librarian of the John Carter Brown Library, and Dr. Henry B. Van Hoesen, Librarian of the John Hay Library. Mr. Albert Harkness was recently appointed to undertake the field work of photographing materials in various Latin-American libraries.

No library in the United States has more than twenty-five per cent of the titles needed by students of the history and culture of Latin America in the colonial period. No library in the western world, and none in the old, can offer such students a collection of material adequate to their requirements. The material is widely scattered among the great libraries of Mexico and South America where it is not easily accessible to scholars either of the United States or of the Latin-American countries.

The possibility of assembling in a single collection a substantial portion of the printed source material relating to the whole of Latin America in the colonial period no longer exists. Unique copies of many

essential books and manuscripts are owned by national and institutional libraries and are simply unavailable for purchase at any price. Other items are still in private hands, but the acquisition of a comprehensive list, no matter how carefully selected, is beyond the resources of any library and indeed of all the libraries in the United States put together. To overcome these difficulties, a microfilm collection of materials not already found among the exceptional resources of Brown University, will be made. Encouragement will be given to the development of a strong and active group of undergraduate and graduate students in the field of Latin-American studies.

The motive for the choice of Brown University as the custodian and administrator of such a collection derives from the principle of building upon existing strength. The Latin-American material for the period before 1801 contained in the John Carter Brown Library is probably superior in extent and selective character to that of any other library in the United States. Other collections at the University supplement this material in a significant manner. Furthermore, Brown University already possesses a well-equipped photographic laboratory and has developed effective techniques in its use. The University's photographic laboratory is an invaluable asset in such a project as the one proposed. It is true that much of the developing of film must be done within the countries in which the photographs are made because of the regulations against the export of undeveloped film. Nevertheless, the prints to be used for the University's collection, for cataloging and for research work will be done at the laboratory by the laboratory staff.

A brief statistical statement of the collections of the John Carter Brown Library gives some indication of their scope. There are in the library 5,000 titles relating specifically to Latin America and printed prior to 1801; more than 2,800 of these are in Spanish, the remainder in other languages. There are also 5,000 titles for this period included among general histories, works of travel and collections of English and French political pamphlets in which strong Latin-American interest is to be found. A careful count of books in the Library in the Spanish language shows that about 1,900 of the titles relating most directly to Latin America were printed in Latin-American countries.

The John Hay Library at Brown University is also the repository of important materials in this field. The George Earl Church Collection is rich in political and economic treatises and in documentary material not printed until the 19th century. These later publications, many of them dealing with the colonial period complement and support the printed source material of the John Carter Brown Library from the earlier period. The Harris Collection of American Poetry and Plays, the greatest collection of its kind in the world, with 700 volumes of Latin-American poetry, similarly enriches the materials of the colonial era. The University Library adds a significant number of titles in the general field.

Opportunity to enlarge these resources for the general use of scholars by microfilming material in the great libraries of the world—the Medina Library in the Biblioteca Nacional in Chile, the Andrade Collection in Mexico City, the British Museum, the Archives of the Indies at Seville and others—presents itself as a project of incalculable value to scholars everywhere, particularly in the United States. From the professional point of view of the librarian photographic copies of books are patently less desirable than the books themselves. From the point of view of the scholar, however, filmed copies are admirable. They bring him material which would otherwise be inaccessible, and they present him with this material in a form effectively adapted to his work.

A word on the great present importance of developing cultural ties with Central and South American countries may not be wholly inappropriate. Today as never before this country seeks to further its economic relations with these nations; today as never before it strives to create new political associations to bind together all the nations of the western hemisphere. Yet we find ourselves lacking in the understanding of the traditions and *mores* of Latin America essential to the attainment of our commercial and political objectives. Our suggestion that the present project can make a valuable contribution to national polity is not dictated by any lack of confidence in its intrinsic value; it does, however, afford added reason for a prompt and vigorous initiation of the program.

It should be emphasized that Brown University is not only inter-

sted in acquiring extensive additions to its library resources in this field but is prepared to initiate and sustain a scholarly program designed to put the available material to the fullest use. With this in mind Dr. Leonard will not only direct the selection of material to be filmed but will devote a large part of his time to teaching both undergraduate and graduate students. Research fellowships will be offered to advanced students in this field. Thus the project will become one for the active development and dissemination of knowledge of this vital epoch in American history.

Chemical Preservation of Squeezes

—EARL R. CALEY and BENJAMIN D. MERITT

THERE is now housed at the Institute for Advanced Study in Princeton a collection of some 20,000 paper impressions or squeezes of Greek inscriptions. Such impressions are essential to any extensive study of the epigraphical records for not only do they preserve the strokes of the letters once cut upon the stone but they also reproduce exactly the size, shape and disposition of the original letters. They are in common use by all students of epigraphy and have come to be regarded as standard equipment necessary for the prosecution of research in any epigraphical laboratory. The most satisfactory squeezes are made by laying a dampened sheet of filter paper upon the surface of the stone to be recorded and then pounding the moistened paper with a fine haired brush until it has been impressed in every chiseled marking upon the stone. Paper is then allowed to dry and when removed from stone can frequently be read on its reverse surface with more ease and precision than the stone itself. Indeed, it may be said that squeezes possess most of the desired qualities except a high degree of durability. In view of the great importance of permanence in records of this sort, a method by which they could be made more durable is therefore much needed.

The chief cause of a certain lack of durability in squeezes is the low mechanical strength of the material of which they are composed. By reason of this lack of strength, fine detail or even coarse lettering may be obliterated, and breaks may occur along the folds of large squeezes, from undue pressure on the squeezes in handling or storage and from repeated use. Accidental wetting is of course ruinous to squeezes, but even dampness may be injurious from a mechanical standpoint, and still more from a chemical standpoint. Since paper of the quality used in making squeezes is composed of nearly pure cellulose there is little reason to believe that they lack permanence from the chemical stand-

ent as long as they remain dry. However, if they become damp from mid weather conditions, particularly in warm climates, there is a distinct possibility that mold growth will occur and that this may lead to chemical deterioration of the material of the squeezes. What is therefore required of a method for increasing the durability of squeezes is that the paper be greatly strengthened and stiffened, and that it be made moisture- and water-resistant.

A method which meets these requirements and is satisfactory in other respects depends upon the impregnation of the squeezes with methyl methacrylate resin. This recently discovered synthetic resin is well suited to the purpose because it is colorless, transparent, hard, and strong, is inert chemically, resistant to the action of light and heat, and is not dissolved or otherwise affected by water.

The method of impregnation consists of spraying the squeezes with a four per cent solution of this resin in acetone and ethylene dichloride. These solvents rapidly evaporate after the application of the solution and leave the paper impregnated with the solid resin. The spray solution is conveniently prepared by diluting one volume of the commercial twenty per cent solution of the resin in ethylene dichloride¹ with four volumes of pure acetone. In applying the solution the squeezes are placed in a horizontal position on large sheets of blotting paper and one side is uniformly treated with a moderately fine spray delivered from an atomizer or airbrush. This operation should be conducted in a well-ventilated room away from open fires, and at least fifteen minutes should be allowed for the evaporation of the solvents before the squeezes are handled.

Experiments on representative squeezes have demonstrated that this method does not alter even the fine details of the impressions, and except for a slight darkening does not change the general appearance of the squeezes. The method also has the advantages of being easy to use, inexpensive, and rapid. Hence it seems to be well suited to the treatment of large collections of squeezes. It is not unlikely that this method of treatment could also be applied with success to fragile paper documents.

¹Manufactured by the Rohm and Haas Company of Philadelphia, and sold under the trade name of Acryloid B-7.

NEWS and TECHNICAL NOTES

ADAPTATION OF RECORDAK CAMERA MODEL C

The Model C Recordak camera when used with 35mm. film can be fitted with a special mask which will prevent the edge of the film from being exposed. On cameras so fitted, textual material being copied must be kept within the bounds of the standard 24mm. frame width as indicated by the guide lines of the projection focusing light. This mask may be secured on special application to the Recordak Corporation, and its use greatly improves the appearance of the finished film as it will prevent the copyholder and surroundings from recording beyond the perforation marks.—R. H. C.



BINKLEY BOOKS AVAILABLE

Through a special arrangement, the remaining copies of the *Manual on Reproducing Research Materials*, by the late Dr. Robert C. Binkley, have been secured and are now available from the American Library Association headquarters, 520 N. Michigan Ave., Chicago. The sale price has been reduced from the former \$3.50 to \$1.75. A limited number of copies are on hand and

requests will be filled in the order received.

The *Manual*, published by Edwards Brothers, Ann Arbor, Michigan, in 1936, was the first detailed account of the many modern techniques of documentary reproduction. It resulted from a survey made for the Joint Committee on Materials for Research of the Social Science Research Council and the American Council of Learned Societies. Among other things it contains analyses of the cost of printing as compared with duplicating or other related techniques, descriptions of various machines, 55 tables and 73 illustrations, many of which are actual samples of work accomplished by printing and duplicating machines.

While some of the material has been superseded, the bulk of the information is still timely. It is almost certain that the volume will soon become a bibliographic rarity.



CATALOG OF MICROFILM REPRODUCTIONS

General Catalogue C of early Western Americana has recently been issued by Southwestern Microfilms. There are 238 items listed and

ced. The titles consist for the most part of 18th and 19th century activities relating to discovery, travel, adventure and exploration of the West and Southwest. Original editions have been reproduced in most instances; where the original edition appeared in a foreign language, the first English edition has been selected. This is the third catalog of microfilm facsimiles issued by Southwestern Microfilms; supplements are promised from time to time. Also advertised in the catalog are small "Goler spools" for short lengths of microfilm. These individual spools are suggested for separate titles and are adaptable for standard reading machines. Suggestions for filing microfilm collections in metal cabinets are included. For a copy of the *Catalogue* or further information, address Southwestern Microfilms, Inc., Santa Fe Building, Dallas, Texas.



EASTMAN PHOTOGRAPHIC COLLECTION

One of the most extensive collections of historic material dealing with photography ever assembled for public showing is now on exhibit at the Museum of Science and Industry in Rockefeller Center, New York. Known as the Eastman Historical Photographic Collection, the exhibit includes a part of the private Cromer Collection acquired in Paris last year by the Eastman Kodak

Company as well as Kodak's own historical accumulation of the past 60 years.

Among the items of special interest are the camera obscura of pre-photographic days, Daguerre's own camera, and other original apparatus, items relating to the work of Niépce and calotypes of Fox-Talbot, wet collodion outfits, albumen prints, candid and miniature cameras dating from the 19th century and picture albums which belonged to Victor Hugo and Napoleon III. An original microfilm dispatch prepared by Dagron during the siege of Paris in 1871 is included.

Daily lectures on photographic history illustrated with Kodachrome slides are offered at the Museum for the duration of the exhibit.



INCONEL STINEMAN REELS

Through the cooperation of a New York metal supply firm, the New York Public Library has secured standard Stineman reels made of inconel metal. Metal strips to the specifications of the Stineman system were supplied and the developing reels were fabricated in Los Angeles. In appearance they resemble standard equipment but the well-known corrosion resistant properties of the metal are expected to improve the operation and lasting properties of the reels. In operation they have proved highly satisfactory to date.

Further information may be secured from Mr. R. H. Carruthers, Assistant in Charge of Photographic Service, New York Public Library.



INTERNATIONAL FEDERATION FOR DOCUMENTATION

In a communication dated June 3, 1940, Dr. F. Donker Duyvis requests that all correspondence for the F.I.D. be directed, for the duration of the emergency, to Mr. E. Mathys, Bibliothekar der Schweizerischen Bundesbahnen, Sekretar der Schweizerischen Vereinigung für Dokumentation, Bern, Switzerland. Mr. Mathys is vice-president of the F.I.D. and will assume active direction of the international aspects of the documentation work while the central office in The Hague will continue research on reproduction methods and the union catalog of scientific periodicals in Holland.



MEDICOFILM SERVICE

Colonel Harold W. Jones, Librarian of the Army Medical Library, and Dr. Atherton Seidell, have forwarded to the JOURNAL a detailed statement of the new MedicoFilm Service which is presented herewith in slightly abridged form.

Under the authority of the Surgeon-General of the Army, microfilm copying from the medical collections of the Army Medical Library has been conducted for nearly

three years by the Bibliefilm Service, a nonprofit agency having its headquarters in the Library of the Department of Agriculture. Although this service has rendered valuable aid to many research workers, it is believed that a microfilm copying service operating within the Library itself and specializing in the field of medicine will contribute even more to the advancement of medical science.

The new service has been established through the generosity of a group of "Friends of the Army Medical Library." It has been given the designation "MedicoFilm Service" and will be operated on a nonprofit basis solely for making the extensive medical literature collections of the Army Medical Library available to research workers who are unable to come in person to consult them. The Library cooperates by supplying the necessary publications and quarters for the service. The user pays only the actual cost for labor and materials required in making and distributing the microfilm copies. In case the established rates should yield more funds than necessary to pay the actual cost of operation, prices will be reduced in proportion.

In order to reduce clerical operations to a minimum, a flat rate of 30 cents per article not exceeding 30 pages in length has been established. In cases of articles exceeding 30 pages an additional charge of 10

nts for each succeeding 10 pages
fraction is made. Microfilms of
articles 30 pages or less in length
will be delivered in one or more
pieces, each nine inches or less in
length, to facilitate mailing short
rips flat in standard envelopes.
Articles exceeding 30 pages will
be delivered rolled in a small box.
Projection enlargements on photo-
graphic paper 6 x 8 inches in size are
available at 10 cents each in addition
to the cost of the negative micro-
film. Checks or money orders should
be made payable to Medicofilm
Service.

A pamphlet entitled *Medicofilm
Service of the Army Medical Library*,
completely describing the service
and containing the abbreviated titles
of about 4,000 medical and related
periodicals, pamphlets, reports and
proceedings currently received by
the Library may be had on applica-
tion to Medicofilm Service, Army
Medical Library, 7th St. and Inde-
pendence Ave., Washington, D.C.



MICROFILE INFORMATION

A 19-page booklet entitled *Micro-
filming with Eastman Micro-File
Recordaks* is now available from
the Eastman Kodak Company in
Rochester, or from the Recordak
Corporation in New York. A general
discussion of microphotography is
followed by illustrated descriptions
and specifications of the principal

items of Recordak equipment which
are available for work with docu-
mentary materials exclusive of busi-
ness records. These include three
cameras, a detailed discussion of the
camera head, two reading machines,
and a brief description of the "Pho-
tostat Micro-film Enlarger" which is
intended for the making of projec-
tion paper prints from microfilm
negatives with the photostat ma-
chine. Brief notes are included about
several Recordak services.



MICROFILM ABSTRACTS

An increasing interest in micro-
film publication of theses and a
more general acceptance of this
method of publication is reported
by University Microfilms. Volume
II, no.2, of *Microfilm Abstracts* was
distributed in September and con-
tained abstracts with accompanying
catalog cards for 66 doctoral disser-
tations now available either as micro-
film positives or paper prints in con-
formance with the plan described in
a previous number of the JOURNAL.
As the demand for *Microfilm Ab-
stracts* from educational and indus-
trial libraries has proved much
greater than originally expected, it
may become necessary to charge a
small subscription fee in the future.



MICROPHOTOGRAPHY IN CHINA

A production microcopying in-
stallation, designed and built by

Dr. R. H. Draeger, with camera, complete equipment for processing, drying, and finishing microfilm, has recently been installed in the Peking Union Medical College, Peking, China. Necessary film and chemicals have been sent from America. Plans for the utilization of the equipment are now being formulated by a local Peking Committee, under the chairmanship of Dr. Henry S. Houghton, Director of P.U.M.C. and with the assistance of Dr. Draeger, who has been detailed to China by the United States Navy. When the organization is completed, it will be possible to secure film copies of materials in Peking libraries, which are among the richest in the world in rare Chinese works. At the present time the installation is being operated on an experimental basis to train operators, to discover the local peculiarities, and to secure a basis for estimating costs. Three categories of material are now being copied, including rare medical works, rare Chinese gazetteers not known to exist in American collections, and *Hsi-Hsia* documents. While no system for ordering film copies from this source has yet been developed, it is probable that it will be based on some sort of exchange with the Peking libraries carried on through the Library of Congress. Meanwhile, inquiries respecting the copying of materials known to exist in Peking can be addressed to Mortimer Graves, Administrative Secre-

tary, American Council of Learned Societies, 907 15th St. N.W., Washington, D.C.



MICROPHOTOGRAPHY IN ENGLAND

An interesting sidelight on the interest displayed in microphotography in wartime London is given in an article appearing in the *New Statesman and Nation*, London, July 20, 1940. The author, Mr. Ritchie Calder, concludes his article with the statement: "Microfilm belongs to the new Renaissance, as much as printing belonged to the old."



MICROPHOTOGRAPHY IN PUBLIC ADMINISTRATION

A graduate research report in public administration entitled "Uses of Microphotography in Public Administration," by Arnold Eddy, has just been completed at the University of Southern California. It is typewritten and contains 27 pages.



MICROPHOTOGRAPHY IN THE WEST

Two interesting articles which relate to microphotography appear in the April 1940 issue of the *PNLA Quarterly* (official organ of the Pacific Northwest Library Association).

The first of these, entitled "Adventures with Films," is by Madeline Gilchrist, Librarian of the Parrington (or English Literature) Branch of the University of Washington

rary. She describes the fascination which she, Russell Blankenship, professor of American Literature, and other faculty members, have had in locating and securing negative microfilm copies of some of the rarer and more significant files of American periodicals. A small grant has already been secured from the Library Committee of the University for securing a few of the most desired files and the Library hopes, eventually, to build up an auspicious film library of early American magazines. Mott's *History of American Magazines* is serving to some extent as a guide, and from this, the *Union List of Serials*, and from other sources, extensive want lists have been prepared which the Library hopes later to satisfy. In many cases, the microfilm negative has been produced in the library's own microfilm section, from original magazines secured from other institutions on interlibrary loan. Where this has been impossible, negatives have been secured on order. Negatives are used only for the preparation of positive prints, for use by the University, and for distribution to other libraries on a cooperative basis. An Optigraph projector is used at the University library.

According to the second article, the Oregon State College is already provisioning a Western Center for

library microphotographic service, to be developed around the facilities already available at that institution. One step in this direction is a \$1,500 grant made in February of this year by the Carnegie Corporation to the Oregon System of Higher Education for research on the application of microphotography to library work, particularly to the microfilming of newspaper files. The work which will be conducted on the campus of Oregon State College, is being directed by Miss Lucy M. Lewis, Director of Libraries, by Mr. Xenophon Smith of the Library, by Dr. Weniger and Dr. Unker of the Physics Department, and by Professor Garman and Mr. Bolinger of the Physics and Photographic Service Departments.*—E. A. TILLEUX.



NATIONAL ARCHIVES GUIDE

The Archivist of the United States announces the publication of the *Guide to the Material in The National Archives*, a 303-page guide to the more than 320,000 linear feet of records received by The National Archives to December 31, 1939. Over half of these records are described in considerable detail in the main portion of the guide and the remainder are listed more briefly in the appendix. Described or listed

*A complete report of this project will appear in an early issue of the *Journal*.
EDITOR.

are records of the United States Senate, all 10 executive departments, 45 independent agencies, and 4 Federal courts; included among them are many maps and charts, sound recordings, motion pictures and other photographic materials.

For each agency of the Government—whether a department, independent agency, bureau, division, or other governmental unit—represented in the main portion of the guide, there is a brief introductory statement which deals principally with the history and functions of the agency. Following the introductory statement are descriptions of record groups, which provide information on such points as the type, subject matter, chronological coverage, quantity, completeness and arrangement of the records. Data on the history of the records, the finding mediums that afford access to them, and any special restrictions on their use are also included.

The *Guide*, in conjunction with the complete documentary reproduction facilities maintained by The National Archives, including microfilm, photostat and photographic copying, will be of great service to scholars located in Washington and elsewhere interested in Federal records.

Copies of the *Guide* may be obtained from the Superintendent of Documents, Government Printing Office, Washington, D.C., paper

bound copies for 40 cents and cloth bound copies for 70 cents.



NEW MATERIAL FROM AGFA

A new and improved type of Agfa Finopan is now being distributed. A finer grain structure and improved soft gradation are claimed. Development time has been increased 30 per cent, although the speed rating remains the same. This film is available in 35mm. and roll sizes, and its use has been suggested for microphotographic reproduction of full-tone originals, as for example photographs and paintings, etc.

Red plastic has been employed for a new compact safelight recently announced. Suitable for positive type and orthochromatic emulsions, this light is made in the form of a shelf with a removable cap which allows the use of white light as needed in the darkroom. It is supplied complete with 7½-watt light at a price of 60 cents.



NEW YORK CALL BEING FILMED

The complete files of the *New York Call* from May 1908 to September 1923 are being microfilmed by the New York Public Library. This newspaper was considered the outstanding socialist paper of its time and as such constitutes an important historical record. Positive film copies will be made available to interested

arians or institutions; inquiries could be addressed to R. H. Carthers, Assistant in Charge of Photographic Service, New York Public Library.



PLASTIC DARKROOM LIGHT FILTERS

Lucite, a plastic produced by DuPont, has been adapted for the making of darkroom light filters by introducing a sufficient amount of coloring matter to produce the exact spectral transmission required. The filters are fadeless, unbreakable, easily cleaned and are not affected by moisture or darkroom chemicals. Three colors are available: green, for use with panchromatic materials, red, for orthochromatic materials, and brown, for certain printing papers. Molded 5 x 7 inch filters are priced at \$2 but plain cut sheet filters cut to any size square or round up to 20 inches can be supplied. Prices and further information may be secured from Defender Photo Supply Company, Rochester, N.Y.



A PROJECTED MICRO-INVENTORY OF MATERIAL FOR VISUAL EDUCATION

There is practically no material available to interested institutions for use in visual education dealing with the art, architecture, archeology, topography, cartography, anthropology, and ethnology of the

Orient. There is a demand for such material, particularly for lantern slides.

A survey should be made of existing slides, photographs and documentary motion picture films which can be borrowed or duplicated. The use of microfilm would perhaps be the most practical means of indexing lantern slides and their catalog cards, as well as the photographed and unphotographed materials owned by institutions and private persons. The advantages of a microfilm index are numerous: (1) It would take little storage room; (2) It could be duplicated inexpensively; (3) Selections could be made directly from it or from cheap copies of it. The catalog of such materials could then be centered in one place which would handle all inquiries and orders. Later, plans could be made for photographing all unphotographed material of importance.

Mr. Paul Vanderbilt, in an article on "Micro-Inventory of an Art Museum Study Collection," in the Spring 1938 issue of the JOURNAL OF DOCUMENTARY REPRODUCTION, puts the matter as follows: "For treatises, technical studies, catalogues raisonnés, chronologies, evolutionary tables, and the like as well as for the exchange of lecture slides, etc., a unified source file of photographs, merely with indication of where to turn for additional data on each specimen, would be invaluable. No

glorified repertory with large photographs and complete data, similar to the many existing excellent partial archives of art history, is likely to be achieved. But on a more concentrated, simplified basis, the existing archives could be unified by microcopying, and the resulting corpus of material extended almost indefinitely by photographing unpublished, unorganized material."

Already the survey made in connection with the preparation of the *Bulletin of Indic Studies* for the American Council of Learned Societies has produced a score or more of inquiries as to where visual material for lecture and study purposes in the Oriental field exists, and how one can know of it and contact it for use.—DR. H. I. POLEMAN, Chief, Indic Division, Library of Congress.



STUDENT'S READER

The Advisory Subcommittee to the Committee on Scientific Aids to Learning, which is developing the Student's Reader, has reported definite progress in its attempts to complete the machine and make it available. The pilot production model has been completed, and after a few minor changes have been made the design will be placed in production. It is expected that a subsequent number of the JOURNAL will carry an announcement of the availability of this instrument.

The Student's Reader is a highly simplified machine intended for the use of the individual scholar or scientist. A low-cost projection bulb is used in conjunction with a book-type filmholder and suitable optics to produce an image with a magnification of approximately 14 diameters on a shielded opaque screen. Orientation for any film placement is provided. The machine is intended primarily for reading short strips of film, although an accessory roll-holding mechanism may be made available. It is entirely manual and non-automatic in operation. The price is expected to be somewhere around \$30, plus shipping charges.

Further information may be secured from the Committee on Scientific Aids to Learning, 41 E. 42d St., New York City.



SWISS ASSOCIATION FOR DOCUMENTATION

The Swiss Association for Documentation, a relatively young institution, held its annual meeting in Berne in April of this year. A comprehensive program has been laid down and 12 subcommittees have been appointed to study various questions and problems. It was decided to publish a new edition of the *Swiss Library Guide* to Swiss and foreign periodicals in Swiss libraries. A *Swiss Guide for Documentation* listing all Special Libraries and

formation Bureaux in Switzerland
s also been projected. One of the
committees will deal with ques-
ns of microphotography and other

methods of reproducing documents.
Correspondence should be directed
to Dr. W. Janicki, Chalet "Sunne-
hüsli," Zug, Switzerland.

FOREIGN SECTION

RECENT PHOTO-MATERIAL FOR DOCUMENTATION¹

Dr. W. Rath

(translated by I. O. Garodnick)²

Negative Film

For documentation the photographic film must satisfy special requirements in the exposure of a 24 x 36mm. miniature reproduction. The quality of the film depends on a series of characteristics of which sensitivity, although placed in the foreground by the amateur, is only one factor and not at all the most important.

Fine grain is much more important since the smooth contours of the letters, pictures, etc., depend on it as far as the print is concerned. When, for example, a large newspaper sheet like that of *The Times* is copied on a 24 x 36mm. film, only in case of a very fine grain in the film is it possible to obtain easily readable letters. To indicate the exact amount of fine grain is impossible since the grain of photographic emulsions varies in size. An average-size grain in these emulsions is about

1 micron. Of the numerous specifications of grain in photographic emulsions, those which are based on the Callier Coefficients seem better to us. A density of .5 is made in direct light and in completely diffused light and the ratio of these two densities is a gauge for the grain.

Independent of this, the resolving power is of importance. This means the smallest interval that two lines can have so that they can be observed as two distinct lines in the print. In this connection there is no generally known method of measurement. Only the film material can be compared in which the dark sectors with small intervals are allowed to proceed from one point; and, by comparison, it is determined how far toward the center these wedges are distinctly separated. The smaller the range in which all lines are merged, the better is the resolving power. Furthermore, there must be an ab-

¹Privately circulated at the 15th Conference of the International Federation for Documentation, Zürich, 1939.

²Translation prepared by the Translation Service of the Modern Language Department of North Carolina State College.

te clarity in the emulsion; the te in the negative must actually transparent or else an illegible picture is the result.

n the printing of publications which is the most frequent field of application of this process, a very steep contrast curve is necessary so that in the finished positive the dark areas stand directly on a bright white background. To be sure, it is favorable to take half-tone pictures with such kinds of emulsion. For this purpose a special emulsion is used. Since this is worth while only in a very few cases, a remedy is a screen or something similar must be used. Normally, the contrast curve of a document film cannot be steep enough; it should drop abruptly, as nearly as possible, to the foot of the curve.

Frequently, the problem of freedom from halation will play a part in which the inner and outer halation of an emulsion must be differentiated. The inner halation arises through the diffusion of the incident rays within the film. The outer halation arises through the reflection of the incident rays on the back of the photographic film support. Both defects are manifested in the fact that in the case of very strong light the edges are not reproduced distinctly, but appear to be completely blurred. The inner halation which is a defect in the documentation of serious consequence can be avoided by special

techniques and preparation of the emulsion. The outer halation is done away with by means of a special coating which is introduced either between the emulsion and the support or on the back of the support.

The question as to which is the best sensitizer of an emulsion for documentary purposes has not yet been cleared up completely. As known, there is a customary (arbitrary) differentiation set up between orthochromatic and panchromatic emulsions. The orthochromatic emulsions are externally sensitive to blue rays as well as to yellow and green rays and can be processed in red darkroom light. In all cases in which the publication does not appear on a pure white background, but on faded paper, an orthochromatic unsensitized emulsion is shown preference since yellow affects an orthochromatic emulsion in the same way as white. Panchromatic emulsions are externally sensitive to yellow, green, and even red rays. Such kind of film must be developed in dark green light. This processing difficulty doubtless produces an inconvenience since the green darkroom light demanded in the process is essentially of poorer visual intensity, and a much longer time is required to get accustomed to such a type of light. In contrast to this disadvantage, there is an advantage in that everywhere that red and brown color tones appear in the

original, the reprint is more nearly accurate in color tones; i.e., the reproduction of the colors contains the same relative vividness that is observed by the eye in the original.

In addition to the characteristics of the emulsion, the support must be considered in documentary film. This is generally taken care of by the use of safety films exclusively for documentary purposes, whereas the normal movie film has been produced on a nitro base almost exclusively up to the present time. This means that the film is very easily inflammable, and when it burns, a dangerous fine-pointed flame results and poisonous gases evolve. Safety film, however, is not nearly as inflammable and burns much like a package of paper. In documentation, consideration must be given to the fact that even the negative film, in a manner similar to that of the positive film, is exposed to a strong light source in the projection apparatus or in reading devices for a long time. Consequently, the film used must be produced on a safety base in every case; otherwise, the whole field of documentation will be brought into disrepute.

The following requirements must be met by every photographic film for documentation. It must possess good durability so that it is not necessary to use only new film. In addition the product used must be uni-

form so that work can always be done with standardized methods of exposure and development. The best film is useless if the name of the manufacturer does not guarantee the absolute safety and uniformity of the product.

Agfa Color Film

Color photography which has taken an unexpected rise in the last two years is destined to be used in documentation to greater extent than heretofore. It is superfluous to state how great the value and the advantage of a color reproduction of old manuscripts and the like are. (The illustrations* will best demonstrate this fact.) It is, of course, purposeful to use color photography where color is present in the original. In the first place, the broad field of the history of art is a recognized field of application, a few colored placard reprints of which are shown here* as examples; in the second place, there is the very large field of old multicolored manuscripts, the documentation of which on black and white does not actually have the genuine touch. The technique of color film, for example the Agfa color film, is very simple. The same photographing equipment is used for the 24 x 36mm. miniature reproduction. The film is supplied in 36 exposures in the usual cartridges. The film cannot be developed personally, but it must be sent to the

*The illustrations mentioned consist of lantern slides, which are not available for reproduction.—EDITOR.

manufacturer for developing. The film is reversible; therefore, the positive is immediately obtained in the right colors. The question of copy reproduction is not important in documentation; in most cases, it is easier to produce a greater number of exposures from an original. The film can be used in every standard projector and in every standard reading apparatus without the need of a larger or stronger lamp. The color re-print depends on the fact that there are three layers of emulsion on the film support. In the development there arises in each of these layers one of the three picture components in the correct color: yellow, magenta or blue green. Undoubtedly with the increased expansion of documentation, color photography will play an outstanding part.

Copex-Autorapid

In addition to photographic re-print of miniature reproduction, documentation on photographic paper has great significance. There are to be mentioned devices which produce on the optical path of the original an unreversed negative, as well as the so-called copy reflex methods, in which the print is produced on a

slightly sensitive paper, in contact with a page written on one or both sides by means of reflex photography. Then a reversed negative can be obtained from which an unreversed positive can easily be made. Doubtless, reflex photography would take on a larger scope if so many consumers did not overemphasize the difficulty of photographic processes. At this point, the Congress should be made aware of an innovation, Copex-Autorapid paper, which is essentially simple in its manufacture. The developer lies in the film of the photographic paper so that the Copex-Autorapid is darkened in a simple manner after exposure to steam and daylight, and then immediately passed through a caustic alcoholic bath. In this way the paper is completely developed, and only the usual time is needed to fix and wash it. With the help of simple chemicals which are easy to get, a negative copy, as well as the positive, can be produced by the reflex method. A simple demonstration of this new process will give the members of the Congress an opportunity to become acquainted with this innovation in the field of documentation.

BOOK REVIEWS and NOTICES

GRAPHIC GRAFLEX PHOTOGRAPHY, by Willard D. Morgan, Henry M. Lester and twenty contributors. New York, N.Y.: Morgan & Lester, 1940. 408p. 7½ x 10 inches. illus. cloth, \$4.

In this book Messrs. Morgan and Lester have accumulated for users of larger cameras a comprehensive factual and inspirational handbook, in every way comparable to their famous *Leica Manual* which has become required reading for the serious miniature cameraist. As in the *Leica Manual*, the products of a particular manufacturer have been selected for emphasis; in this instance, those of the Folmer Graflex Corporation. Obviously, the users of Graflex cameras will derive the maximum benefit from the book, although the users of other equipment will find the material of almost equal value.

There are 25 chapters, a complete index and a catalog section which contains photographic advertising matter. Some chapters are devoted to fundamentals, as the choice of a lens, the darkroom, filters, illumination and its control, negative exposure development and printing; others are primarily instructional

dealing with the use of Graphic Graflex, view and other cameras. The authors have been fortunate in obtaining the collaboration of numerous competent specialists who have produced outstanding articles in the particular fields. Examples are: Kodachrome, news, press, publicity, dance, illustrative, advertising, aerial and syncroflash photography, photomicrography and the photography of children. A complete description of the "Big Bertha" and related cameras used for making closeup photographs of distant action in news pictures is here presented in print for the first time. Documentary reproduction is particularly stressed with considerable illustrative matter in the chapters on Modern Educational Photography and Documentary Reproduction.

Photographs, charts, diagrams and tables have been employed in profusion to illustrate the text. The illustrations have been well selected and are excellently reproduced. As a handbook for the advanced amateur or for the professional, and also as a reference book of real and enduring merit, *Graphic Graflex Photography* promises to be a photographic "best seller."

PHOTOGRAPHIC FACTS AND FORMULAS, by E. J. Wall (revised and largely rewritten by Franklin I. Jordan). Boston, Mass.: American Photographic Publishing Company, 1940. 384p. 6 x 9 inches. Cloth, \$2.50.

The tremendous strides made in photography in the last 16 years are strikingly reflected in the revision by Mr. Franklin I. Jordan of Wall's *Photographic Facts and Formulas*. Last published in 1924, the book has long been a valued friend to professional and amateur alike; the present edition is of even greater utility.

New editions generally, even those which have been rewritten are frequently failures and represent a jodgepodge of so-called new matter grafted on an old basic structure. In the present instance, this is emphatically not the case. Mr. Jordan has undertaken a thoughtful revision retaining the information of enduring value and adding so much new material that the result is practically a new book. Throughout the reader is impressed with the fact that photography has outgrown the "cut and copy" stage and has become infinitely more precise and scientific. Specifi-

cally, obsolete tables of plate speed values have been replaced with a discussion of methods of determining film and plate speeds; the chapter on development which in the previous edition was practically a list of developers has been replaced by a discussion of the theory and practice of development in the light of modern practice. New material on negative defects, duplicating negatives, copying, photomechanical processes, color processes and many other subjects has been added. The entire arrangement of the book has been altered; chapters have been combined and extended and the presentation has been placed on a more logical basis. While the number of pages is almost exactly the same in the two editions, the page size has been increased so that the new volume is about one fourth larger than its predecessor.

Readers of the JOURNAL will be particularly interested in the chapters on Copying, and Studio and Dark-room Helps. A helpful abridged table on filters in ordinary use appears on page 49. The working photographer will find the book a valuable up-to-date reference work which will provide information or a clue to the solution of most problems.

PATENT SECTION*

U.S. 1,975,289, Oct. 2, 1934, Ernest M. Reynolds, Cleveland, Ohio.

Apparatus for cleaning film strip, for removing dust and smudges rapidly and completely without contact with human hands, leaving the film clean, dry and free from scratches. 2p. 1pl.

U.S. 1,977,166, Oct. 16, 1934, Anthony G. Wise assigned to Metro-Goldwyn-Mayer Corp., Beverly Hills, Calif.

Method of preparing and treating strip motion picture and sound recording films for printing and projection. 4p. 1pl.

U.S. 1,979,106, Oct. 30, 1934, Alexander S. Henderson, Aberdeen, Scotland.

Apparatus for processing, washing and drying substandard cinematograph films. 5p. 2pl.

U.S. 2,035,558, March 31, 1936, Whitten P. Lloyd assigned to the Haloid Company, Rochester, N.Y.

A photo-copy machine of the type used for reproducing documents, maps, or other records. 3p. 4pl.

U.S. 2,053,621, Sept. 8, 1936, Albert I. Mackler, Jamaica, N.Y.

Continuous machine for subjecting film, particularly motion picture film, to treatments to preserve its quality and life indefinitely. 7p. 6pl.

U.S. 2,113,578, April 12, 1939, Rupert H. Draeger, U.S. Navy.

A neat and compact, moderate cost precision reading machine for photographic strip film containing reading matter. 3p. 3pl.

U.S. 2,136,262, Nov. 8, 1938, Edson S. Hineline assigned to the Folmer Graflex Corporation, Rochester, N.Y.

A means for making photographic records of counting mechanisms before and after use; relates particularly to voting machines. 15p. 21pl.

U.S. 2,137,028, Nov. 15, 1938, David W. Rau, Kirkwood, Mo.

Photographic enlarging machine. 4p. 2pl.

U.S. 2,137,378, Nov. 22, 1938, Noel Billing, London, England.

Photographic camera and attachment therefor. 4p. 1pl.

U.S. 2,141,176, Dec. 27, 1928, Rupert H. Draeger, U.S. Navy.

Portable, completely self-contained microcopying apparatus for loose sheets. 4p. 2pl.

U.S. 2,141,392, Dec. 27, 1938, Jack Honrine, New Bern, N.C.

A simplified inexpensive photoengraving camera. 2p. 2pl.

*The Patent Section is made possible through a grant received from the Committee on Scientific Aids to Learning. The listings include the patent number, date of issue, patentee and assignee (if available), a brief description of the published purpose or title of the patent and an indication of its size; for example, 4p. means 4 pages; 4pl. means 4 plates of accompanying drawings.

2,147,932, Feb. 14, 1939, John J. nson, Dallas, Texas.

A photographic apparatus or attachment for a continuous reproduction of lengthy copies of records or characters such as Schlumberger electrical logs, seismograph records, driller logs, etc. 3p. 2pl.

2,148,018, Feb. 21, 1939, Solomon L. Goldberg, New York, N.Y. Simple and inexpensive machine for making photographic copies of drawings, documents, etc. 2p. 1pl.

2,148,620, Feb. 28, 1939, James Henderson assigned to himself and Rudolph Hallensleben, Beechurst, N.Y., jointly.

Portable, self-contained photographic apparatus. 3p. 2pl.

2,150,974, March 21, 1939, William C. Huebner, New York, N.Y.

Camera primarily intended for obtaining photomechanical color separation negatives for use in color printing processes. 7p. 9pl.

2,153,154, April 4, 1939, Wade Nivison and Joseph R. Putlock

assigned to Eastman Kodak Company, Rochester, N.Y.

Apparatus for continuously photographing documents and discharging different documents through spaced exits to separate places of disposal. 3p. 1pl.

U.S. 2,194,808, March 26, 1940, Frank D. Pooley, Jr., Philadelphia, Pa.

Machine for continuously microphotographing detached documents. 3p. 1pl.

DESIGN PATENTS

U.S. Des. 112,013, John Franklin Whitman, Jr., Brooklyn, N.Y.

Design for a film viewer, 1p. 1pl.

U.S. Des. 112,410, Nov. 29, 1938, Roy S. Hopkins assigned to Eastman Kodak Company, Rochester, N.Y.

Design for a combined microphotographic copying and projection apparatus. 1p. 1pl.

U.S. Des. 114,585, May 2, 1939, Robert H. Fullerton assigned to Fullerton, Inc., St. Paul, Minn.

Design for a portable photo copying machine. 1p. 2pl. (see JOURNAL, Vol.3, p.45-46).

EDITOR'S CORNER

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MR. GEORGE A. SCHWEGMANN, JR., is Chief of the Union Catalog and of the Photoduplication Service, Library of Congress. MR. JOHN K. BOEING is Sales Manager of the Recordak Corporation, New York. MR. RALPH H. CARRUTHERS, an Associate Editor of the JOURNAL, is also Assistant in Charge of Photographic Service, the New York Public Library. MR. F. DONKER DUYVIS is the Secretary of the International Federation for Documentation at The Hague, Holland. MR. EUGENE B. POWER is President of University Microfilms, Ann Arbor, Michigan. DR. M. LLEWELLYN RANEY is Director of Libraries, University of Chicago. MR. JAMES H. CASE, JR. is Assistant to the President, Brown University. PROFESSORS EARL R. CALEY AND BENJAMIN D. MERITT are both associated with the School of Humanistic Studies, Institute for Advanced Study, Princeton University. DR. WALTER RATHS is the Chief Chemist of the (German) Agfa Corporation, Berlin, Germany. The translation of his article was

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Radio Facsimile in Documentary Reproduction

One of the features of the American Library Association's Cincinnati meeting this year was a semi-private conference organized by Dr. M. Llewellyn Raney of the University of Chicago for technicians and others interested in the possibilities of radio facsimile in documentary reproduction. The Editor was given the minutes of this most interesting conference and prepared a digest which was scheduled for appearance in the September JOURNAL. Developments subsequent to the conference, however, caused the report to increase in size to such an extent that space was not available. Accordingly, the report has been postponed and will appear in the December number.